MANARA
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ISSUE 2

جامعة نيويورك ابوظبي

NYU ABU DHABI

MANARA

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NYU Abu Dhabi's research enterprise is one of the most unique knowledge-creation forces in academia standing at a unique moment in its history.

At a time like this, knowledge and action are needed the most. As a University in and of Abu Dhabi, the drive to address global challenges serves as the guiding force in our mission to be a hub of development, innovation, engagement and positive change for the UAE, the region, and the world. We choose to make our mark through impactful research, spurned by the endless curiosity, steadfast dedication, and bountiful creativity of our faculty.

Our academic vision for the next decade is not only to create an educational institution that cultivates an environment conducive to all forms of research and exploration with an eye towards its societal impact, as well as advancing the foundations of knowledge. To realize our ambition, our University recognizes that our research, in all its capacities, is capable of solving some of the world's most pressing concerns.

As we enter our second decade of growth, NYUAD will continue to contribute to the development of a diversified knowledge economy and society in Abu Dhabi, help to advance NYU's global mission, and carve a new model for higher-education for the betterment of humanity. The research you will read about in this edition of Manara provides proof positive of our community's collective pursuit to make our world a more hospitable place for future generations to thrive.

Arlie Petters
Provost

FEATURED CONTENT

SOCIAL ROBOTS

Using data collected from nonverbal behavioral cues, robots can detect the mental and emotional states of humans.

Two years of Zoom meetings have challenged even the most stalwart of us to maintain attention in the seemingly endless strings of online gatherings. Now, new technology can quantify our level of engagement in online settings and help boost our participation in virtual events, classes, and meetings.

Hanan Salam, assistant professor of computer science and Emerging Scholar, has built socially and emotionally intelligent machines capable of monitoring the level of engagement of their human counterparts in online engagements.

In her latest research, Salam proves these robots are capable of "reading virtual rooms" while learning emotions, the mental state, and the personality of human behavior.

Most humans express emotions through perceivable cues. Think of some leaning forward, engaged in a conversation and actively listening. Another example is how tone of voice and intonation has the ability to change the meaning of entire sentences.

She has programmed her robots to monitor and evaluate these visual and audio cues on how humans interact, and provide feedback to participants on these metrics of engagement. The technology could be used to listen in on Zoom sessions and indicate to the users the level of engagement of each participant.

"Robots interacting with humans, if they are able to express a smile or a frown, can unlock potential in the way we interact with our technology to an extent that can have far-reaching potential," she said.

The key for her is found in nonverbal communication, which is generally an accurate indication of attention levels. However, that presents a challenge in the fact that just as verbal expression differs from person to person, so too does nonverbal communication.

An example would be the difference between a seven-year old child expressing sadness compared to an elderly woman. It is therefore important to develop personalized machine learning

> **"Robots interacting with humans, if they are able to express a smile or a frown, can unlock potential in the way we interact with our technology to an extent that can have far-reaching potential."**
>
> **Hanan Salam**
> Assistant Professor of Computer Science, Emerging Scholar

models to be able to detect the various inputs and higher social constructs contextually.

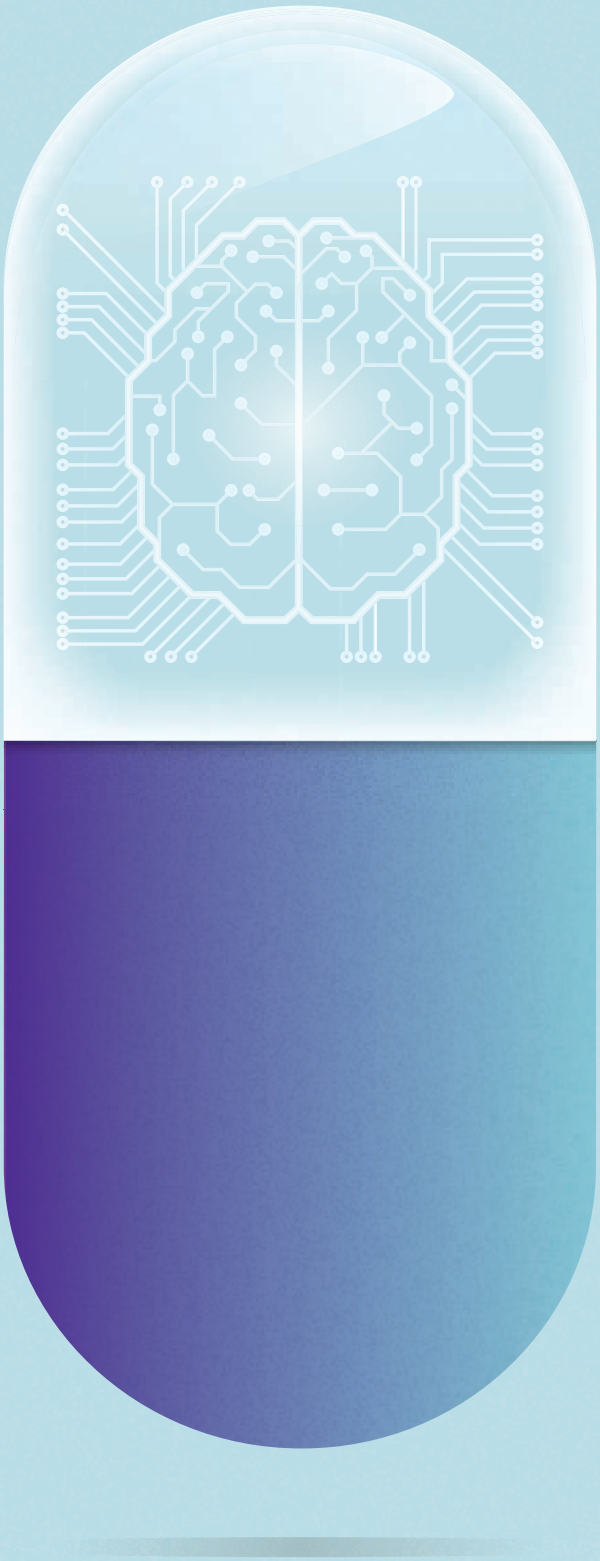
To overcome that, she is using machine learning to program robots capable of detecting personalities of humans based on their nonverbal behavior and creating profiles on each individual in an online setting. This coding allows her to train models capable of understanding human personalities and provide humans information accordingly.

These personalized models of personality can then lead programs to provide tailor-made information to users. In particular, and perhaps as a result of the challenge of teaching her classes on Zoom, Salam has demonstrated the ability of these programs to be applicable in a modern context by determining the level of engagement from her students.

Some of the suggestions the program could provide is the level of interaction from students, it can also determine whether participants want to leave the online interaction or not.

The technology has direct applications for assisting individuals with neurodevelopmental disorders such as Attention Deficit Hyperactivity Disorder (ADHD). Strategies for improving the concentration level of such individuals can be integrated in the robots to increase the academic outcomes of such individuals, whether digitally or in-person.

The technology can be used across a range of different online environments to better help organizations, teaching institutions, to gauge an audience, or "read the room" – a measure many have lost due to the impersonal interactions from seemingly endless calls for screen-to-screen communication. ■



The Magic Pill

Nanotechnology is changing the way we deal with disease and could help solve some of our biggest biological challenges.

Open brain surgery for those suffering from Parkinson's disease, daily injections in the abdomen in diabetic humans, or the debilitating effects of chemotherapy for cancer patients are all invasive treatments that millions suffer from on a regular basis. This could all be replaced as treatments with non-invasive nanoparticles in the form of ingestible pills and small probes developed at NYU Abu Dhabi.

Khalil Ramadi, assistant professor of bioengineering, runs the laboratory for advanced neuroengineering and translational medicine at NYUAD, where his group researches ways his lab can interface with the central nervous system. Part of his research, which covers a broad range in this field, involves developing implantable devices, as thin as hair, that could be inserted into patients' brains to deliver drugs or treatments to specific regions of interest.

This technology, Ramadi believes, could be used to help treat certain ailments like epilepsy or Parkinson's. In Parkinson's, the death of certain dopamine neurons in specific areas of the brain could be offset by delivering replacement cells to those regions.

Ramadi's lab aims to use implantable microdevices to administer cell therapy in patients in a more targeted and sustained manner than is currently done. Such an approach attempts to change the course of the disease

"Part of his research, which covers a broad range in this field, involves developing implantable devices, as thin as hair, that could be inserted into patients' brains to deliver drugs or treatments to specific regions of interest."

itself rather than merely relieve its symptoms.

Another area of Ramadi's research looks to bypass the brain entirely. "The running joke when I was doing my PhD was people telling me, 'Khalil, I don't care how small you make your implant, I don't want a hole in my skull,' which is a fair point. So we began demonstrating the viability of using devices implanted elsewhere in the body, to be able to modulate neurons in the brain, without ever having to go into the brain," Ramadi said.

A prime candidate, and one Ramadi says is the most "elegant" for this, would be to deliver devices to individuals' gastrointestinal tract. The GI tract houses the enteric nervous system, consisting of the second largest number of neurons in the body after the brain. Science is increasingly discovering interconnections between the GI tract and brain.

Gastrointestinal implants could be ingested, much like medications patients do today. Such implants could help treat several disorders. Hunger regulation is among one of the applications that Ramadi believes could be achieved through such devices, and one that could encourage healthier lifestyles and futures.

Although still requiring more research, regulating emotions responses could also be another application of these devices.

"Science is increasingly discovering interconnections between the GI tract and brain."

Although the idea of using ingestible devices to control emotions might be one met with heavy skepticism, this could help regulate chemical imbalances characteristic of mental health issues.

DRUG DELIVERY

Farah Benyettou, research scientist at NYUAD's Trabolsi Group, develops nanoparticles for drug delivery on cancer treatments and diabetics. The idea is that if effective medicine could be delivered in a less intrusive way, then the patients of both these ailments would be less affected by their diseases and the drug toxicity.

Nanoparticles are targeted at specific regions of the body without subjecting the rest of the individual to its effects. This is particularly pertinent when it comes to cancer therapies.

Although an effective means of killing the cancer-causing cells, Chemotherapy, also indiscriminately destroys the cells in other parts of the body. The therapy is taxing on individuals who are already immune-compromised and could put extreme patients at risk.

One of the main benefits of nanotherapy is the ability to provide a honing mechanism in the treatment that only activates on the malfunctioning areas of the human body instead of the blanket treatment that traditional medicine provides which can't discriminate the healthy cells from the sick ones.

"It's a better way to deliver the drug to the target, instead of this systemic toxicity. The goal here is to guide the drug to the tumor, and act on the cancer cells without damaging the surrounding organs."

Farah Benyettou
Research Scientist, NYU Abu Dhabi

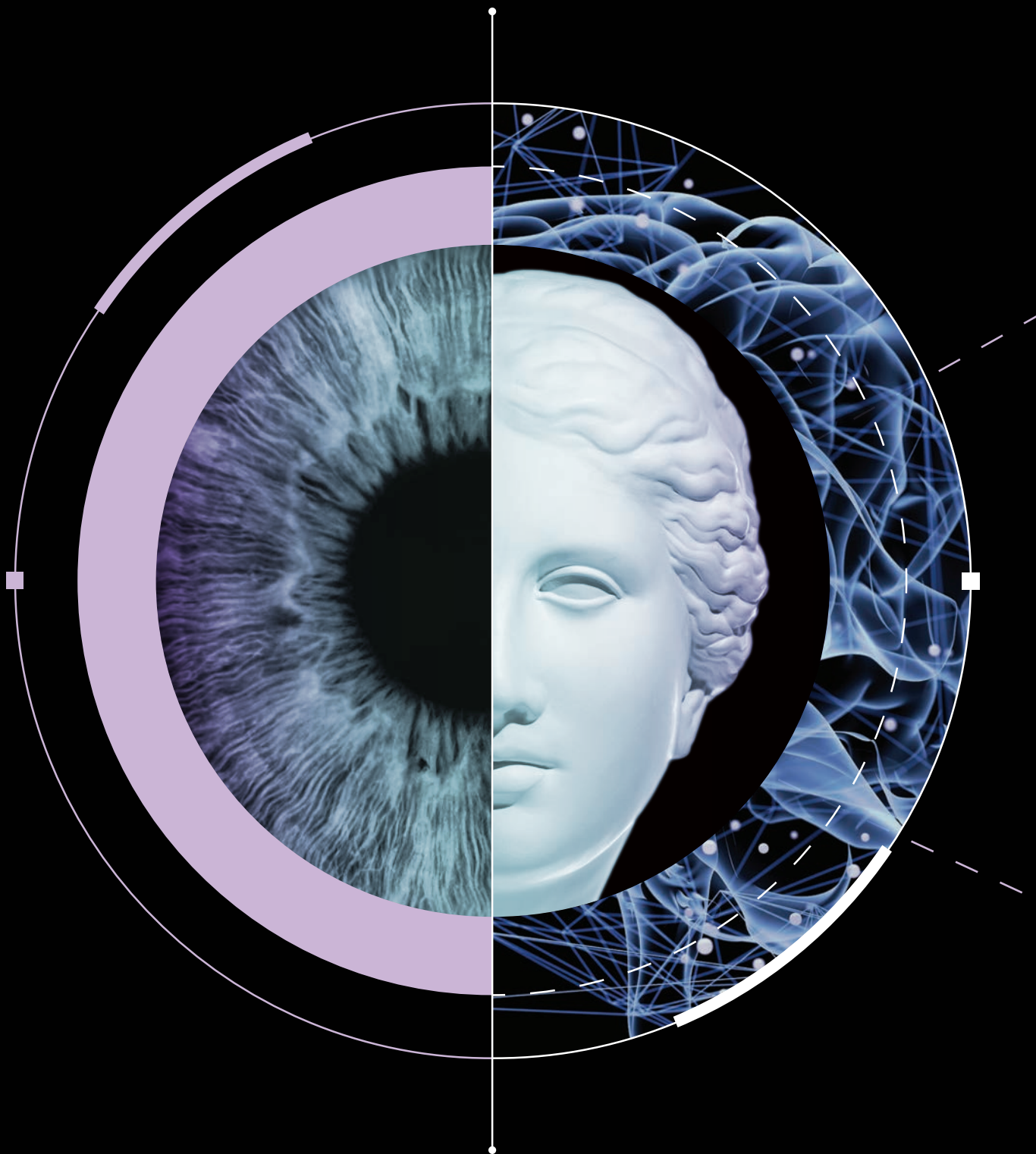
"It's a better way to deliver the drug to the target, instead of this systemic toxicity. The goal here is to guide the drug to the tumor, and act on the cancer cells without damaging the surrounding organs," she said.

Another benefit of nanoparticles is in their ability to administer much larger doses of medicine to individuals without fear of affecting functioning parts of the body. In traditional medicine, drug manufacturers and physicians must take into account that medicine, whether injected or ingested, will be not only absorbed by more than just the trouble areas in patients but also will be largely eliminated by the body.

This results in considerations for the dosage of the medicine in its effect, or side effect, and could result in other parts of the body malfunctioning as a result of a foreign substance being administered. As such, the medical field is severely limited in their dosage prescriptions due to fear of what it could do to the healthy parts of the patient.

Development in nanoparticles allows scientists to "target" the treatment such that it only releases its chemicals or stimuli in the malfunctioning part of the body. This could allow physicians to administer significantly larger, and more effective, doses of medicine to patients without fear of what might happen in other parts of their body.

Ultimately, nanoparticles aren't a new chemical composition or treatment. Science possesses, in many cases, fully functioning medicine that can cure the ailment, but doctors simply cannot deliver enough of it to save a patient's life. With developments in nanoparticle delivery technology, or implants, that might soon change. ■



BRAIN VISUALS

Much of the mechanics and biology of vision in the human brain is well understood, but what does the way the brain processes visual information tell us about how our cerebrals are organized, and more importantly, why?

> **“Biologically speaking, learning faces has been important to our survival, and in that regard we all do it similarly.”**
>
> **Olivia Cheung**
> Assistant Professor of Psychology

A face appears on a screen, it’s a horizontally spliced image of two well-known celebrities. Separately, these two would be undeniably recognizable to many. The top half of the face is of Taylor Swift, the bottom is of Katy Perry. Yet when these separate face halves are merged together, the face that we might have seen before or even, depending on fandom, thousands of times, now looks like a completely different face.

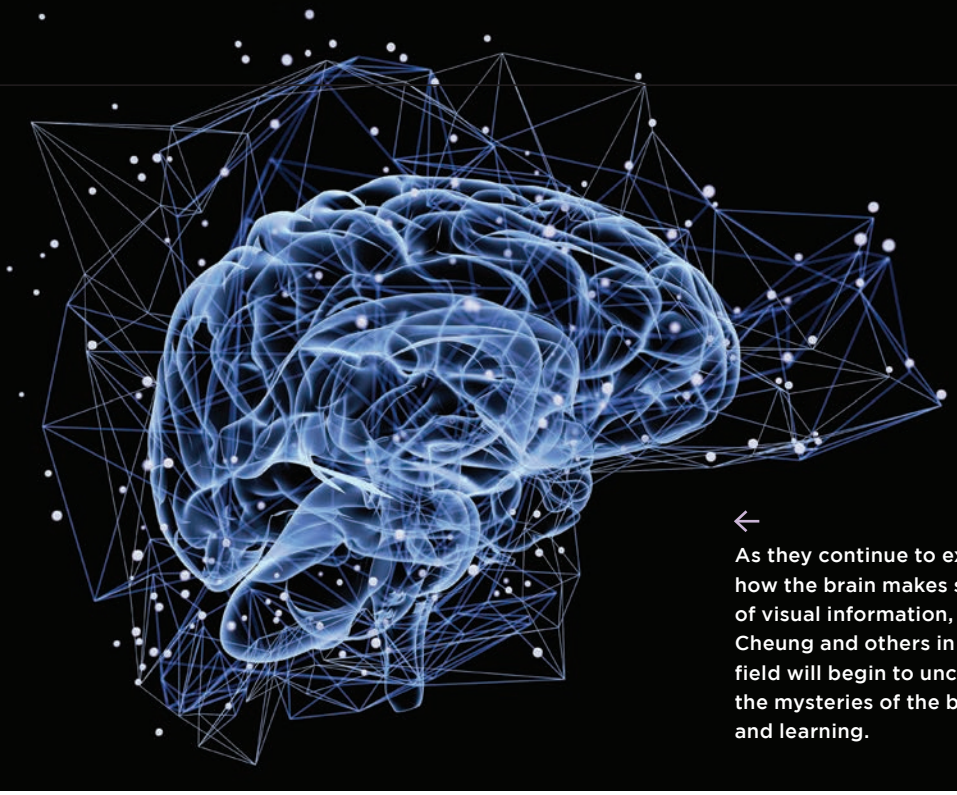
It’s a striking phenomenon that Olivia Cheung, assistant professor of psychology, says speaks to the heart of her research that explores the interaction between visual and conceptual knowledge. Almost all of us possess a part in our brains that is able to uniquely recognize thousands of faces – a task that Cheung says is remarkable considering how similar all faces are in as far as they have the same main components arranged in an identical configuration: e.g., two eyes above a nose and a mouth.

In particular, two sources of influences are at play and currently being researched by her lab.

The first question they seek to answer is that research has shown different neural and behavioral computations are used to process different categories (e.g., faces, animals, manmade objects, words) that we see, but these differences are consistent among many of us, why is that the case?

An example is why are we all able to process faces in the same way, yet we all come from different cultural backgrounds speaking different languages, and with widely different life experiences.

“It’s supposed to be nature vs nurture. So our brains should all process information slightly differently. But for example, we see there are multiple categories that are fundamental to everybody. Biologically speaking, learning faces has been important to our survival, and in that regard we all do it similarly,” she said.



As they continue to explore how the brain makes sense of visual information, Cheung and others in her field will begin to uncover the mysteries of the brain and learning.

Although there is a lot of nature involved, Cheung is also looking at the nurture part of it. An example of this neural malleability is found in scientific research findings in which people who have limited exposure to a certain human race find it difficult to tell apart individuals from that race. However, the more exposure people have with individuals of that race, either the same or different from their own race, the more they are able to discern. This is an indication that different brain networks, for example the face recognition network, are highly malleable and can change over time.

There is a debate on whether these critical brain processes, such as the face or word recognition networks, are exclusive to recognizing their intended functions or whether they are involved in specific computations that can be used for multiple categories. This leads to the second question that fascinates Cheung: Can these face-processing networks be trained to do something else?

"This is the nurture part coming in. How do we fine tune it, can we change it? We have the systems in place, everyone is born with the tendency of these networks to process these categories that are useful – we know that the face system does a very good job at processing faces and the word system is very good at processing words, but can they be used for different things," she said.

Her research is looking into how different kinds of experiences can lead to specific kinds of changes in our brains. The lab has discovered that when humans gain experience and knowledge it often signifies a change in our behaviors and brains. People on the autism spectrum, for example, are not interested in processing faces, so there is work being done by other researchers on whether they use those networks for other functions.

"Musical notation reading, for example, is a new skill that some of us learn. The brain doesn't come up with a new network for it, but it might try to utilize its existing networks, such as the network for reading, for it" she said.

Cheung says that vision is likely the most important sense that many rely on to understand the world around us. As they continue to explore how the brain makes sense of visual information, Cheung and others in her field will begin to uncover the mysteries of the brain and learning.

WORKPLACE BIAS

A new study shows the extent to which discriminatory thinking influences hiring practices in the workplace.

An ongoing study has shown that recruiters and hiring managers are more likely to hire people from their own race in the early part of accepting applicants before switching over to a more inclusive pattern.

Jemima A. Frimpong, associate professor of social research and public policy, is conducting a study that records managers' decision-making when looking for new recruits and monitors choices made based on perceptions of race.

The study was done using a pool of randomly generated names attached to resumes that all have similar value in regards to experience and their perceived value to the organizations.

The names on these resumes are intentionally fashioned to give managers a good indication of a recruit's race based on their name.

"This project tries to tease out to what extent does discrimination in the workplace affect hiring decisions. I try to determine whether a black-sounding name as opposed to a white-sounding name influences those choices even though value should be the most important factor for firms to consider," said Frimpong, who is also the program head for business, organizations, and society.

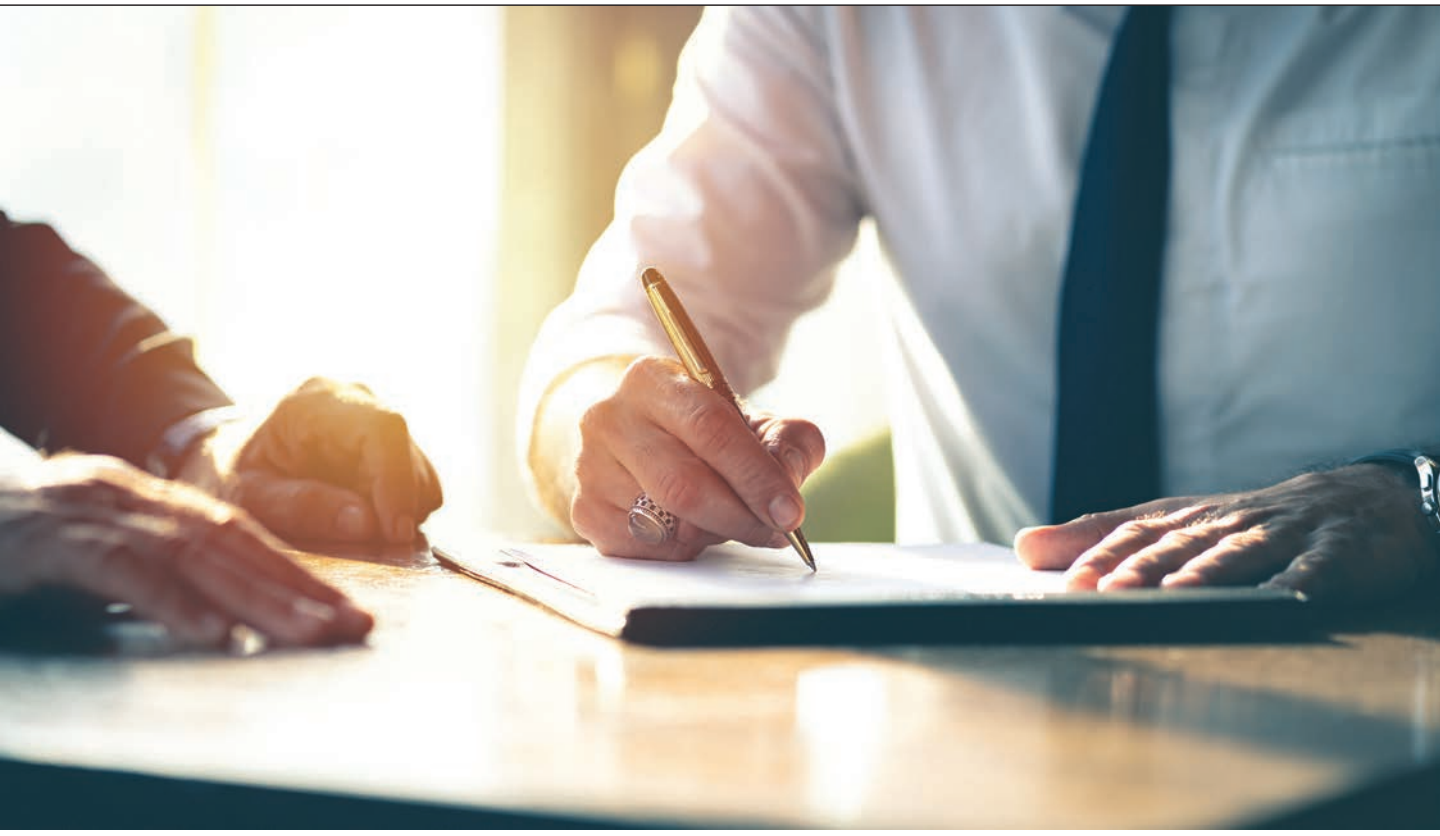
Frimpong finds that white managers were more likely to consider hiring candidates with what was perceived as white names in the initial part of the interview. The same was the case with Black recruiters, who were likely to hire more black-sounding names on the CV's.

However, after about 30 decisions made in this pattern, Frimpong noticed managers began diversifying their preferences for candidates to include hires outside their race.

This shift in decision-making suggests there may be some

"We have experience to show that even when companies respond favorably, to the Black Lives Matter movement for example, it doesn't necessarily mean they behave any differently in terms of who they hire."

Jemima A. Frimpong
Associate Professor of Social Research and Public Policy



learning effect. In the beginning, the white managers are more likely to hire white-sounding names, but then the managers begin to consider the factor of diversity later in the process and adjust their hires accordingly.

Frimpong hypothesizes that managers may experience a moment of self-reflection and start to realize they are hiring people with names indicating they belong to the same race as them.

IMPACT

From an intervention perspective, this information could provide decision-making input to firms and managers to alert them to this behavior such that they begin considering diversity from the very beginning.

Frimpong said the failure to consider diversity in the onset of hiring was the case even in companies that were presenting themselves as abiding to the equal employee opportunity policies, or in some cases, laws. She found most companies committed to equal opportunity practices displayed the same discrimination when it came to hiring and promotion.

"We have experience to show that even when companies respond favorably to the Black Lives Matter movement, for example, it doesn't necessarily mean they behave any differently in terms of who they hire," she said.

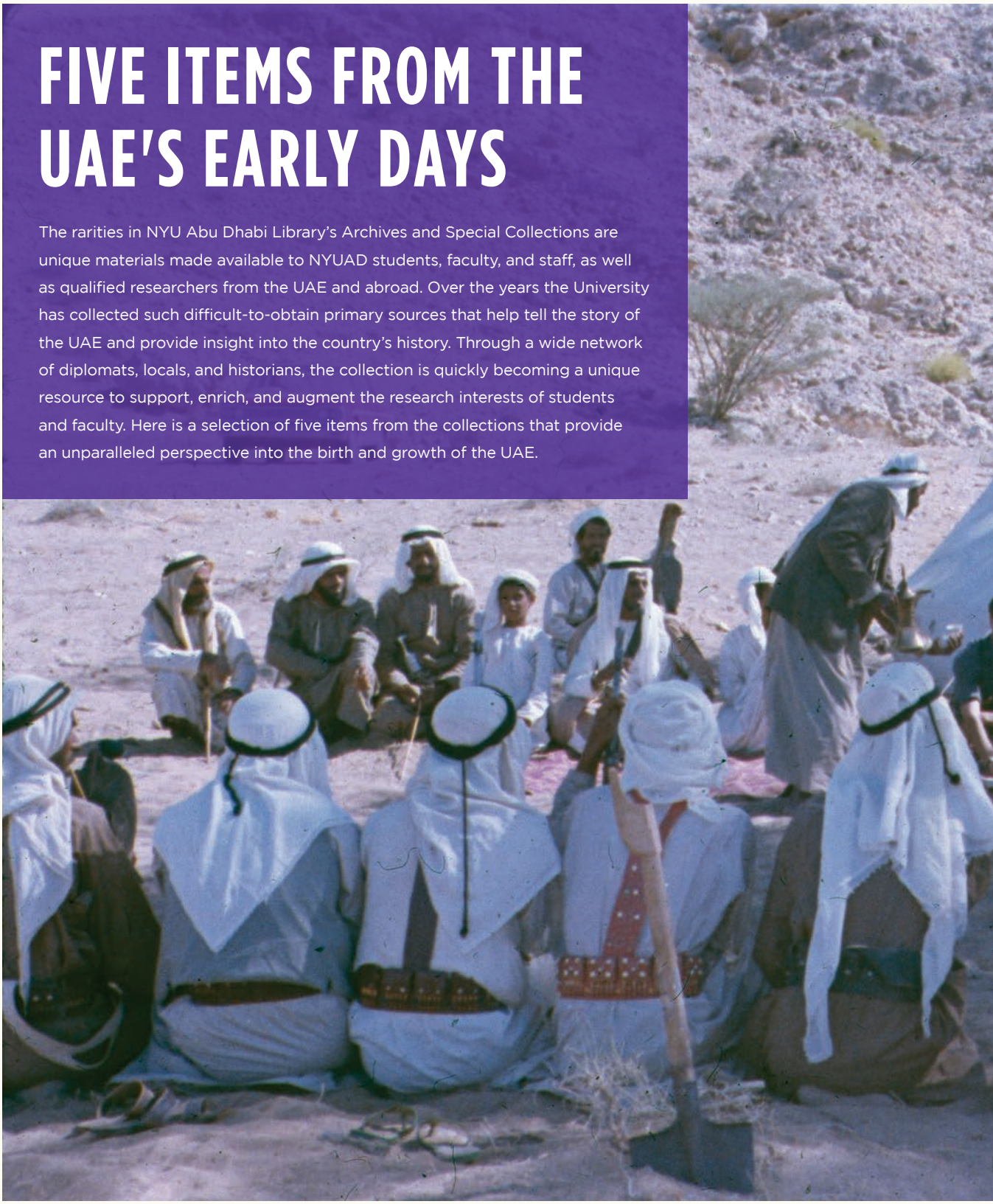
Although the study was conducted in the US, Frimpong said that there are studies that correlate to her experiment and show that discrimination occurs in similar patterns around the world.

For example, studies have shown in India that managers were interested in looking at caste in names when it came to making a decision on whether to hire an individual or not.

The next step to her research is to look at whether this pattern of behavior is applied to promotion schemes within institutions and across more races. ■

FIVE ITEMS FROM THE UAE'S EARLY DAYS

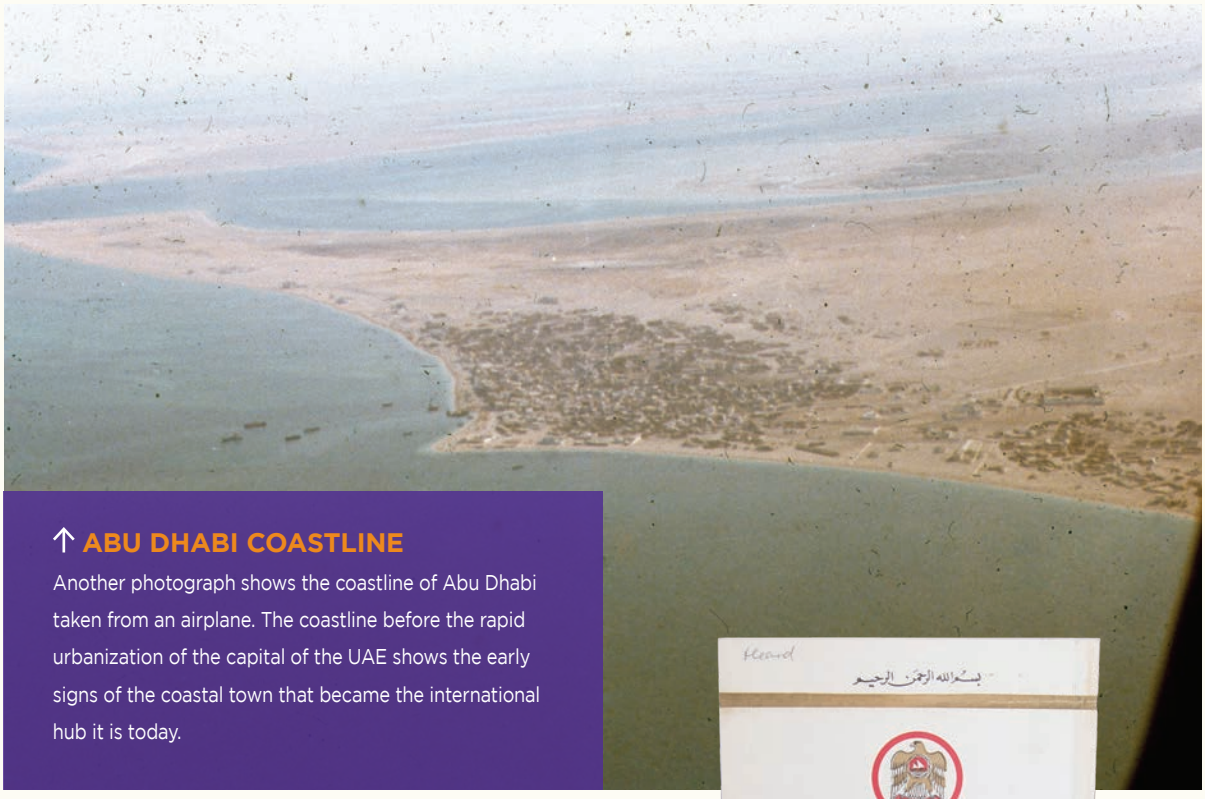
The rarities in NYU Abu Dhabi Library's Archives and Special Collections are unique materials made available to NYUAD students, faculty, and staff, as well as qualified researchers from the UAE and abroad. Over the years the University has collected such difficult-to-obtain primary sources that help tell the story of the UAE and provide insight into the country's history. Through a wide network of diplomats, locals, and historians, the collection is quickly becoming a unique resource to support, enrich, and augment the research interests of students and faculty. Here is a selection of five items from the collections that provide an unparalleled perspective into the birth and growth of the UAE.



Images courtesy of Frauke Heard Bey and David Heard collection and Graham A. Hill collection

← SHEIKH ZAYED BIN SULTAN

Likely to be taken before unification, sometime between 1964 and the early 1970s, this image shows Sheikh Zayed bin Sultan, the UAE's founding father who served as President since the nation's formation until his death, meeting with various constituents. Although a prominent Sheikh at this time with global relations and a growing reputation as a visionary leader, Sheikh Zayed is seen here in touch with his Bedouin roots. Meeting with a variety of people, Sheikh Zayed traveled with his entourage of family members, would-be ministers, and assistants to take note of the desires and challenges of what would become his citizens in the newly formed nation.



↑ ABU DHABI COASTLINE

Another photograph shows the coastline of Abu Dhabi taken from an airplane. The coastline before the rapid urbanization of the capital of the UAE shows the early signs of the coastal town that became the international hub it is today.

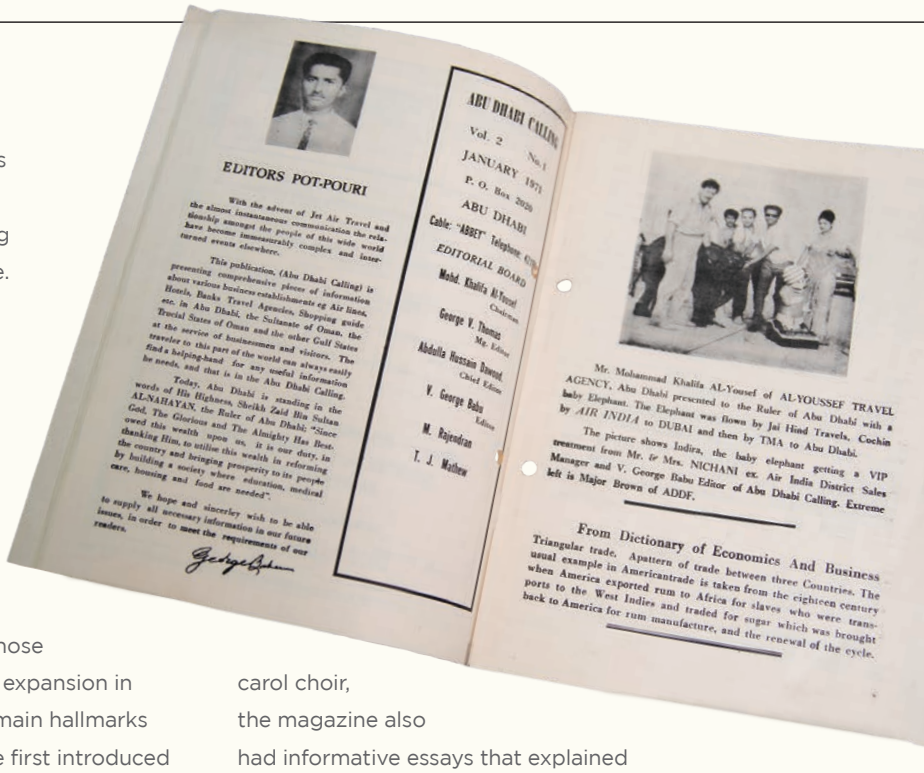
UAE'S OFFICIAL GAZETTE →

The launch edition of the *UAE's Official Gazette*, seen here at "Year 1, Edition 1," served as Emiratis' first opportunity to own a copy of and learn from their newly formed provisional constitution. Purchasable at local bookstores for 300 fils, the national publication introduced the quarter million or so citizens in 1971 to their rights under the newly-formed nation. The preamble to the constitution, which begins with "We, the Rulers of the Emirates of Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al Qaiwain, Ras al Khaimah and Fujairah...," indicated one of the first declarations to act as one nation. Although the official constitution was not adopted until 25 years later in 1996, the ethos, many of the principles, and the rights of the people were inspired or taken directly from this initial publication. This edition serves as the first public document published as a unified nation, introducing many of the legal institutions that have endured for the last 50 years.

"This edition serves as the first public document published as a unified nation, introducing many of the legal institutions that have endured for the last 50 years."

ABU DHABI CALLING →

Abu Dhabi Calling was in many ways intended to live in the suitcases of the business-savvy, English-speaking audience – both local and expatriate. The idea behind the publication, which had new editions multiple times a year, was to serve as an accompanying guide for business people looking to grow their establishments, and seek other opportunities, in the emerging emirate. Furthermore, it served as a guide to families that have moved to Abu Dhabi, or those that were looking to experience the expansion in growth. Cinemas, many of which remain hallmarks of Abu Dhabi, like the El Dorado, are first introduced here. Along with providing advertisements for establishments and events like joining a Christmas carol choir, the magazine also had informative essays that explained the culture of the UAE and the region to the newly-arrived reader.



EDITORS POT-POURI

With the advent of Jet Air Travel and the almost instantaneous communication the relationship amongst the people of this wide world have become immeasurably complex and interested events elsewhere.

This publication, (Abu Dhabi Calling) is presenting comprehensive pieces of information about various business establishments eg Air lines, Hotels, Banks Travel Agencies, Shopping guide etc. in Abu Dhabi, the Sultanate of Oman, the Trucial States of Oman and the other Gulf States at the service of businessmen and visitors. The traveler to this part of the world can always easily find a helping-hand for any useful information he needs, and that is in the Abu Dhabi Calling.

Today, Abu Dhabi is standing in the words of His Highness, Sheikh Zaid Bin Sultan AL-NAHAYAN, the Ruler of Abu Dhabi: "Since God The Glorious and The Almighty Has Bestowed this wealth upon us, it is our duty, in thanking Him, to utilise this wealth in reforming the country and bringing prosperity to its people by building a society where education, medical care, housing and food are needed".

We hope and sincerely wish to be able to supply all necessary information in our future issues, in order to meet the requirements of our readers.

ABU DHABI CALLING
Vol. 2 No. 1
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P. O. Box 2929
ABU DHABI
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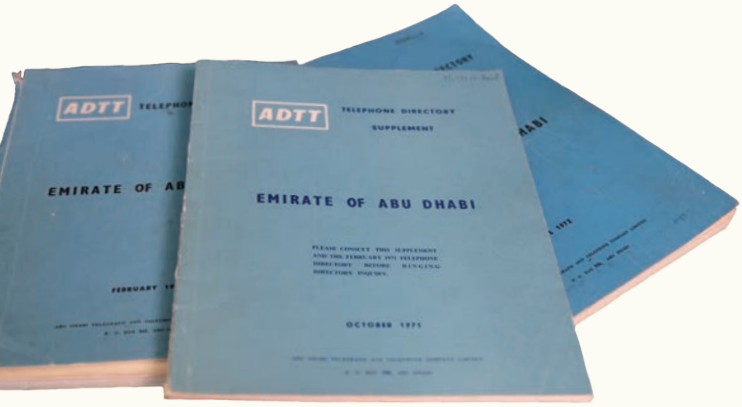
Mr. Mohammad Khalifa AL-Yousef of AL-YOUSSEF TRAVEL AGENCY, Abu Dhabi presented to the Ruler of Abu Dhabi with a baby Elephant. The Elephant was flown by Jai Hind Travels, Cochin by AIR INDIA to DUBAI and then by TMA to Abu Dhabi.

The picture shows Indira, the baby elephant getting a VIP treatment from Mr. & Mrs. NICHANI ex. Air India District Sales Manager and V. George Babu Editor of Abu Dhabi Calling. Extreme left is Major Brown of ADDF.

From Dictionary of Economics And Business

Triangular trade. A pattern of trade between three Countries. The usual example in Americantrade is taken from the eighteen century when America exported rum to Africa for slaves who were transports to the West Indies and traded for sugar which was brought back to America for rum manufacture, and the renewal of the cycle.



> **“Published in February 1971, the directory details the establishments that were on the ground working to help build the ambitious vision of the founding father just several short months prior to unification.”**

↑ TELEPHONE DIRECTORIES

Pick up the phone, dial 41722 and you speak to the late Sheikh Zayed’s majlis. The long-heard myth of Sheikh Zayed being an accessible ruler, only a phone call or a visit away from a meeting, is confirmed in this, one of the first telephone directories of Abu Dhabi. His number was not insider information, in fact it was published and on display. Intended to serve as a way to connect the emerging city, the directory not only contains the numbers of Sheikh Zayed’s court, but also other Sheikhs, Ministers, and more detailed information for businesses and the like. Published in February 1971, the directory details the establishments that were on the ground working to help build the ambitious vision of the founding father just several short months prior to unification. The directory also contains advertisements of companies that helped lay the framework for the nation’s growth.

REFUGEE PREJUDICE

Self-reflection on ancestors' immigration history can make people more empathetic towards others.

Asking people to reflect on their own family histories, or imagining the experience of suddenly fleeing home, reduces prejudice towards migrants and could form the basis for a more inclusive dialogue in heterogeneous societies.

In a new study conducted over four years, Melina Platas, assistant professor of political science, and co-authors, asked 6,000 respondents for their opinions on refugees and immigrants, while measuring their attitudes towards immigration policies according to the sequencing of the questions asked in the online survey.

The respondents were split in two, with one group being asked to reflect on their own family histories and immigrant story before answering questions about immigrants and immigration policy, and another group being asked to detail their immigrant history after these questions.

They found the group that was asked first about their family histories was supportive of more open immigration policies, and generally expressed less prejudice towards immigrants.

"What we suggest is that when we ask people to recall their own family's history, this is like a form of perspective-taking, or trying to imagine yourself in the shoes of someone else who has a different experience than you," she said.

Perspective-taking allows people to imagine themselves living the experience of someone else. The researchers found that simply asking someone about their ancestors' immigration history made them more empathetic towards others.

These results contribute to a nascent body of research suggesting that individuals who possess a shared connection to the migrant experience are more likely to hold positive attitudes toward others.

The researchers show across the three studies conducted over two years that even a light-touch treatment can meaningfully shift attitudes. Although Platas concedes that these attitude shifts might not be long-lived, these results show compelling evidence that

> **"What we suggest is that when we ask people to recall their own family's history, this is like a form of perspective-taking, or trying to imagine yourself in the shoes of someone else who has a different experience than you."**
>
> **Melina Platas**
> Assistant Professor of Political Science

a family history narrative can shape attitudes toward migrants – suggesting that the power of perspective-taking can extend via family relationships.

Although Platas' research is focused primarily on the US, the finding can begin to explain attitudes in other countries that are experiencing an influx in immigrants and refugees.

The one caveat in the research is that the US is a relatively young country that prides itself on being an immigrant nation – thus adding an added layer of complexity to the significant portion of Americans who are staunchly anti-immigrant.

The researchers said that short-term changes could be relevant for politicians. Doing so from a public platform, and reminding people of their family histories could lead to a perspective shift in immigrants and refugees, who are moving more than ever before. This research can help inform policies that could have more lasting changes and shift the discussion away from xenophobia in an increasingly integrated world.

CAPPING OFF A COLORFUL CAREER

The globally recognized academic began her deanship with the aim of developing the faculty in the social science division, while also facilitating their research and globally-oriented teaching.

As the newly appointed Dean of Social Science, Paula England, shares all the attributes that represent the modern NYU Abu Dhabi scholar: a rich and distinguished academic journey, experience in leadership positions at the very top of her field, and a desire to make her work more international. When it comes to headship though, she shares a characteristic that is widely regarded as the hallmark of great chiefs: she never set out to become a leader, and certainly not an academic administrator.


Paula England

In fact, the Silver Professor of Arts and Sciences at NYU, who has published prolifically over her decades as a professor, has actively avoided roles like department chair or dean, fearing the responsibility would draw her away from teaching and research.

However, when the Chair of Sociology role became vacant in NYU, England felt a call to lead the department despite "scrupulously avoiding a role like that" previously. She felt that she could help out temporarily as the chair, and quickly found, thanks to her organizational skills, that she was not only good at it but that she enjoyed the role.

Having served as the chair in New York, and having been told about the deanship position at NYUAD, England decided that she would apply. Describing her thinking, she said,"I thought it would be an interesting capstone to my career to help this place continue to develop. I had already had so much history with NYUAD. I knew this campus was such an incredible place, and I liked and respected the people. So, I decided to go for it."

DAY ONE

Although England was appointed as dean as of fall of 2021, the American academic has been a regular feature on the faculty roster since classes were being taught in Sama Tower more than ten years ago.

Seeing the University grow in an annual time-lapse, seven weeks at a time, led her to make the decision to take the role of dean of what she views as an excellent and vibrant faculty.

"I've been very impressed coming seven weeks a year, and seeing how the University is developing and what an incredible place it is with the faculty from all around the world, and with research that is so internationally oriented," she said.

In the initial class she taught in 2011, and in the one she has taught each year since as affiliated faculty, England enjoyed campus diversity, and the enriching presence of students in her class offering global insights. Her teaching of NYUAD's diverse students had a profound effect on her work, professionally and personally.

> **"I thought it would be an interesting capstone to my career to help this place continue to develop. I had already had so much history with NYUAD. I knew this campus was such an incredible place, and I liked and respected the people. So, I decided to go for it."**
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> **Paula England**
> Dean of Social Science

In England's first class, while teaching a segment about marriage and gender, she found that three of her ten students came from societies where their marriage would probably be arranged by their parents. In response, England adjusted the curriculum to bring in more global content. This departed from the way she was used to teaching her classes – based on research on the US.

Over the years, England, whose research heavily involves statistical analysis of survey data, began incorporating more international data sets in her teaching and in her own research. In one of her classes, she was assisted by a graduate student whose mother was from Egypt. Eventually, this mentee, Eman Abdelhadi, and England wrote and published a research paper using an international data set, the World Values Study.

ACADEMIA TO LEADERSHIP

As an academic, England uses concepts from sociology and economics to analyze gender arrangements and gender inequality. For the majority of her career, she focused on these gender dynamics in the US and other affluent societies. But her experience at NYUAD, which goes back a decade before her recent appointment as dean, has led her to branch out to women's status around the globe.

As one of the first faculty to have taught in NYUAD, England witnessed the cultivation of the faculty roster at the young University, saying that every year she was more impressed by the research NYUAD faculty members were conducting. She is also involved in NYU Shanghai as a Research Affiliate of the Center for Applied Social and Economic Research.

As dean, she wants to continue to attract talented faculty members from around the world and to foster a globalism in research and teaching in the context of the world-renowned educational practices that has made American universities the most sought-after destination in the world for faculty and students alike.

Among the ambitious and lofty ideals England has challenged herself with, it all boils down to one essential goal: empower our community and grow the talent we have. She explained her aim like this: "I know it sounds like a low-level goal but one of my aspirations for being dean really is to not waste a faculty's time in unproductive meetings. I want us to get things done, and to try to figure out where to direct our efforts." ■

RETURN TO SENDER

Are the rich more selfish than the poor?

It starts with an envelope carrying 20 euros and a note from a grandfather to his grandson. Delivered to several hundreds of houses and apartments in the Netherlands, some in low-income areas and others in affluent neighborhoods, the research experiment set out to discover who was more likely to return the envelope to its rightful owner – the grandson.

The idea for the research began in 2008, when the Great Recession spurned Nikos Nikiforakis, professor of economics, to explore the reemerging stereotype that the rich are more greedy than lower income individuals.

"It's a very difficult question to answer. Because there is no evidence to signify that if you took a poor person and made them rich overnight and vice versa, the previously rich wouldn't act like the previously poor," said Nikiforakis, who serves as the co-director for the Center for Behavioral Institutional Design (C-BID).

The study uses a field experiment to investigate whether wealthy individuals were less likely to engage in prosocial behavior, meaning behavior intended to help other people.

To test whether affluent individuals behaved more selfishly than others, the researchers intentionally misdelivered envelopes to some of the richest and the poorest households in an undisclosed city in the Netherlands. The aim was to see which households returned the most envelopes. This approach allowed the researchers to measure the recipients' prosociality without bias as individuals were not aware their actions were being monitored.

The act of returning a misdelivered envelope is prosocial, as it requires effort but offers no personal benefit. The cost of the prosocial act was also the same for everyone allowing for a clean comparison of the relative kindness of the rich.

In sharp contrast to the popular view, the experiment found that

"More than debunking a stereotypical view of the wealthy, our experiment showed that poverty has a negative impact on prosocial behavior. This suggests that, by reducing poverty, we may be making society, in a sense, less selfish."

Nikos Nikiforakis
Professor of Economics

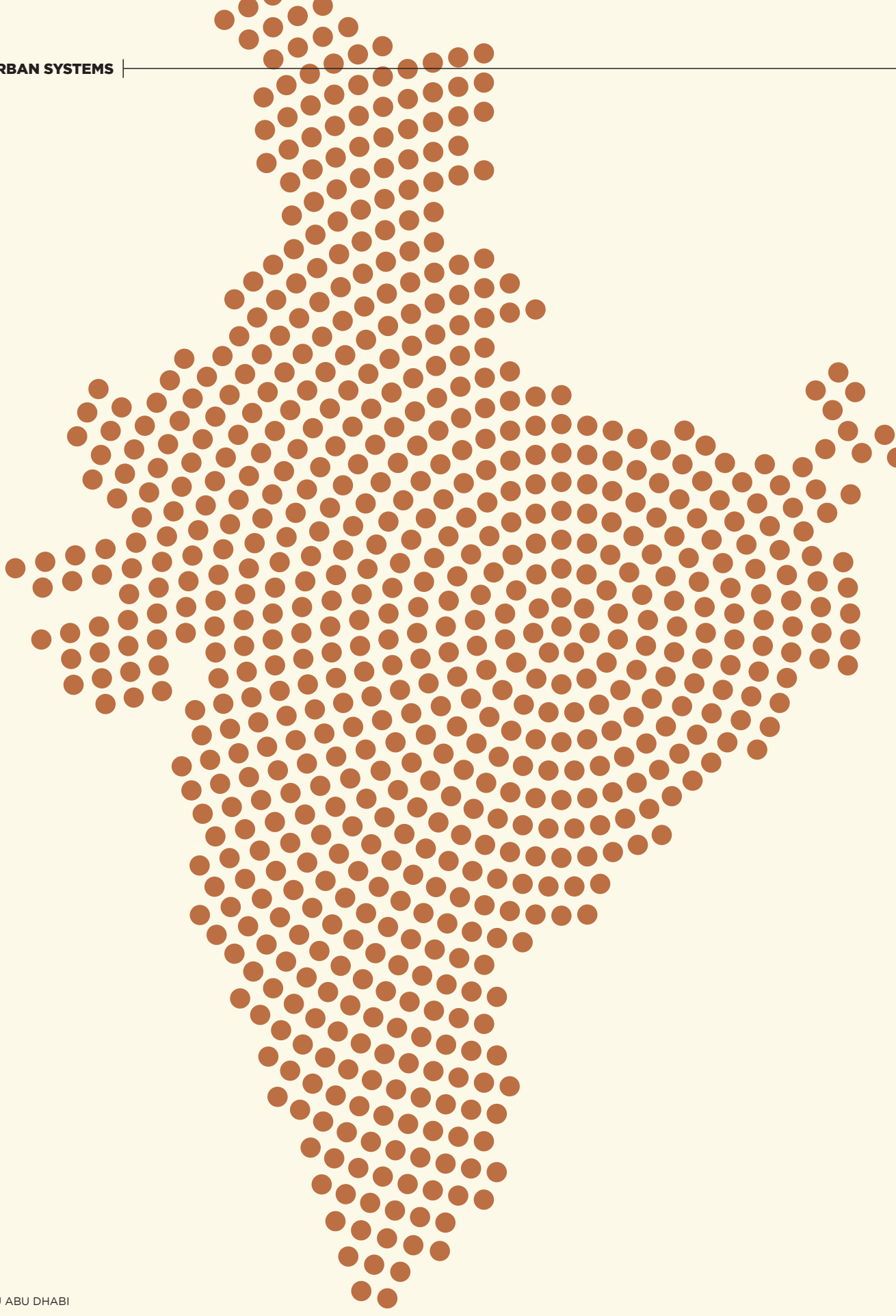
individuals of high socioeconomic status, with wealth that was 90 times higher than the others in the study, were substantially more likely to return misdelivered envelopes to their intended recipients. The data also revealed an interesting pattern: immediately after receiving their salaries, the poor were as likely to return misdelivered envelopes as the rich, even if the envelope only included the grandfather's note. This suggests that the financial pressures on those on the lowest socioeconomic rungs crowd out their willingness or ability to behave prosocially.

"More than debunking a stereotypical view of the wealthy, our experiment showed that poverty has a negative impact on prosocial behavior. This suggests that, by reducing poverty, we may be making society, in a sense, less selfish," Nikiforakis added.

Researchers at the Center for Behavioral Institutional Design (C-BID) at NYU Abu Dhabi (NYUAD) have published a paper in Nature Communications titled Higher socioeconomic status does not predict decreased prosocial behavior in a field experiment.

↑ Envelopes used in the field experiment to investigate whether wealthy individuals were more or less likely to engage in prosocial behavior.

This experiment is part of Nikiforakis's work with C-BID, which is a first-of-its-kind institution in the United Arab Emirates that conducts cutting-edge research in behavioral social science and uses the scientific insights obtained to inform policy making. ■



the Sound *of* Silence

A documentary investigating a disappearing artform aims to make viewers rethink the value of heritage.

Under the shade of a Kheiri tree on one of the hottest days of summer, a frail Rajasthani man over 80 years old, with partial vision and severely impaired hearing, sits down gingerly with the help of those around him. His son relays the questions from Surabhi Sharma, associate professor of practice of film and new media, who is shooting a documentary about the disappearing music of Mirs, a muslim community of musicians in Rajasthan.

Sharma was told not to expect much from this living legend – one of the last practitioners of the 15th century Sufi music of the pastoral community of Mirs– due to his old age. After what seems like an exercise in futility, the old man's confusion subsides, he goes quiet, laughs, and begins to sing an ancient song, one that he had sung hundreds of times in his youth, when his people were known for their musicality.

"It was magical and, of course, his singing is not the way it used to be because he can't hear himself so it's off pitch. He sang a bit and went on to describe dozens of compositions and poems that he remembered vividly, and then he said, 'what is the point of you people listening to this, it is gone,'" she says.

Preserving a disappearing culture is the point behind the documentary Sharma has been shooting since 2017. She has been working to capture the unique ways the pastoral people have preserved the ancient songs from both Sufi Saints and Bhakti Saints for over 10 centuries. Although they were Muslim shepherds, they sang songs at events for both religions, were invited into homes of the surrounding community, and revered as one of the most musically and historically significant groups in the region.

However, in recent years, a series of events has all but eroded the deeply cultural and spiritual artform that not only transcended ethnic groups, but languages.

The community, which spanned across the desert, is now divided by the contentious India-Pakistan border. From one end, conservativism shunned these musical shepherds, claiming their music as blasphemous and not

part of the more conservative brand of Islam.

On the Indian side, as religious divides in the community became more pronounced, people ceased inviting the musicians into their homes, questioning the intentions of Muslims becoming a part of Hindu festivals and religious events.

Adding to the community's woes was a national irrigation project by the Indian government in the 1960s that saw the landscape and their pastoral livelihoods transform, and the end result is a people who now no longer take pride, nor nurture, their ancient practice.

"These musicians, who carry the older history of that region over the last 10 centuries, are in danger. They have now become basically daily wage workers, so they're economically and socially pushed to the margins," Sharma said.

"In recent years, a series of events has all but eroded the deeply cultural and spiritual artform that not only transcended ethnic groups, but languages."

The purpose of the film, set to be completed later this year, is to reflect on what it means for communities to lose oral histories preserved through poetry and music in the face of the state barely acknowledging their distinct identity.

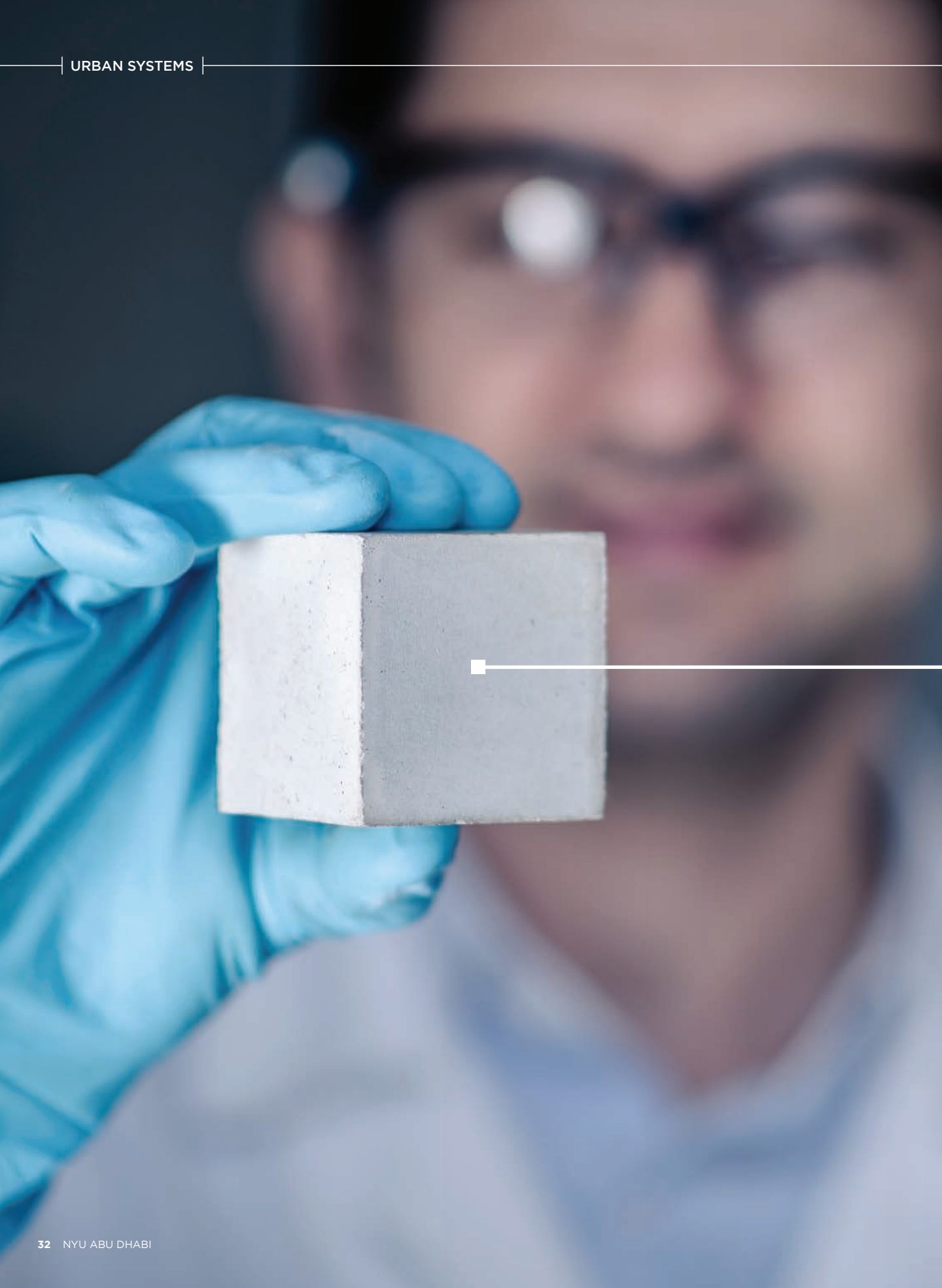
This is particularly true for the Mir community, who have resisted popularizing their music with pop tunes or production techniques to make it more appealing to the wider "Bollywood-crazed" public.

Sharma, who is program head of film and new media, also says that it isn't just the rich cultural heritage that is being lost. Ostensibly, by neglecting what once made a certain populace unique, modern society disarms these groups of not only what makes them particular as cultural sui generis and living time capsules, but also strips them of the livelihood that allowed them to thrive into the cultural confluence they have been throughout history.

Sharma met with several of the musicians over her years of shooting the film, but none embodied the problem at hand more than a tabla player whose hands were forced to conscript in a government project building roads.

"That's the only job he could get, which meant he was doing heavy labor. His hands were so calloused, that he told me when he works it would take six months for his hands to heal before he could play the tabla," she said.

Sharma imagines a government scheme that recognizes what a waste it is to make these artists, and others like them, choose. She encourages the government to envision a future that lifts people out of poverty through their artform, thus preventing a cultural heritage loss that is key to two major religious contingents, and also provides these groups with the livelihood to survive as mainstays of the myriad cultures that make India the place it is today. ■



RETHINKING THE WAY WE BUILD

> **“Through our process, and others, civil engineers must begin to accept their responsibility to remedy the mistakes of the past, with innovations of the future.”**

Kemal Celik
Assistant Professor of Civil and Urban Engineering

For the last 150 years, the process of making cement has largely remained the same – but that is about to change. Research on using industrial waste from desalination plants to make the second most consumed material on earth, after water, has been proven as an effective and ecologically friendly alternative.

Kemal Celik, assistant professor of civil and urban engineering, has developed a method of using brine, a desalination byproduct, to make cement in a process that requires significantly lower resources and energy while producing a similar quality product.

The process of making magnesium-based cement, of which the UAE has enormous access for production, has proven to be an environmentally sustainable alternative. The cement production requires substantially lower energy than conventional Portland cement, allowing factories to reduce their environmental footprint and reduce the production cost.

Additionally, producing the alternative cement from materials that would otherwise be discarded into the ocean means that the brine cement could protect the marine ecosystem, while at the same time making our buildings sequester carbon dioxide.

This is a stark contrast to the manufacturing process of modern cement. Forged in factories with massive kilns where calcium carbonate and other ingredients are heated to extremely high temperatures to produce the familiar ash-colored powder that is the lifeline of the construction industry. The calcium carbonate decomposes and emits CO2 at these high temperatures achieved by burning fossil fuels. This presents cement factories as one of the largest emitters of greenhouse gasses, responsible for eight percent of global human-made CO2 emissions.

Whereby Celik’s method localizes the process – using waste materials found in the regions where desalination

Celik's cement making process was demonstrated at the Venice Biennale, where involvement in the UAE's innovative pavilion won the Golden Lion for Best National Participation.

is used to supply fresh water. "Through our process, and others, civil engineers must begin to accept their responsibility to remedy the mistakes of the past, with innovations of the future."

This process was demonstrated at the Venice Biennale, where Celik's involvement in the UAE's innovative pavilion won the Golden Lion for Best National Participation.

"In our case, at the UAE Pavilion in the Venice Biennale, the puzzle entailed matching this region's high demand for cement, manufacturing of which is a major source of greenhouse gases, and supplying it with desalination brine, a chemically unique byproduct that we regretfully dispose of in our oceans," he said.

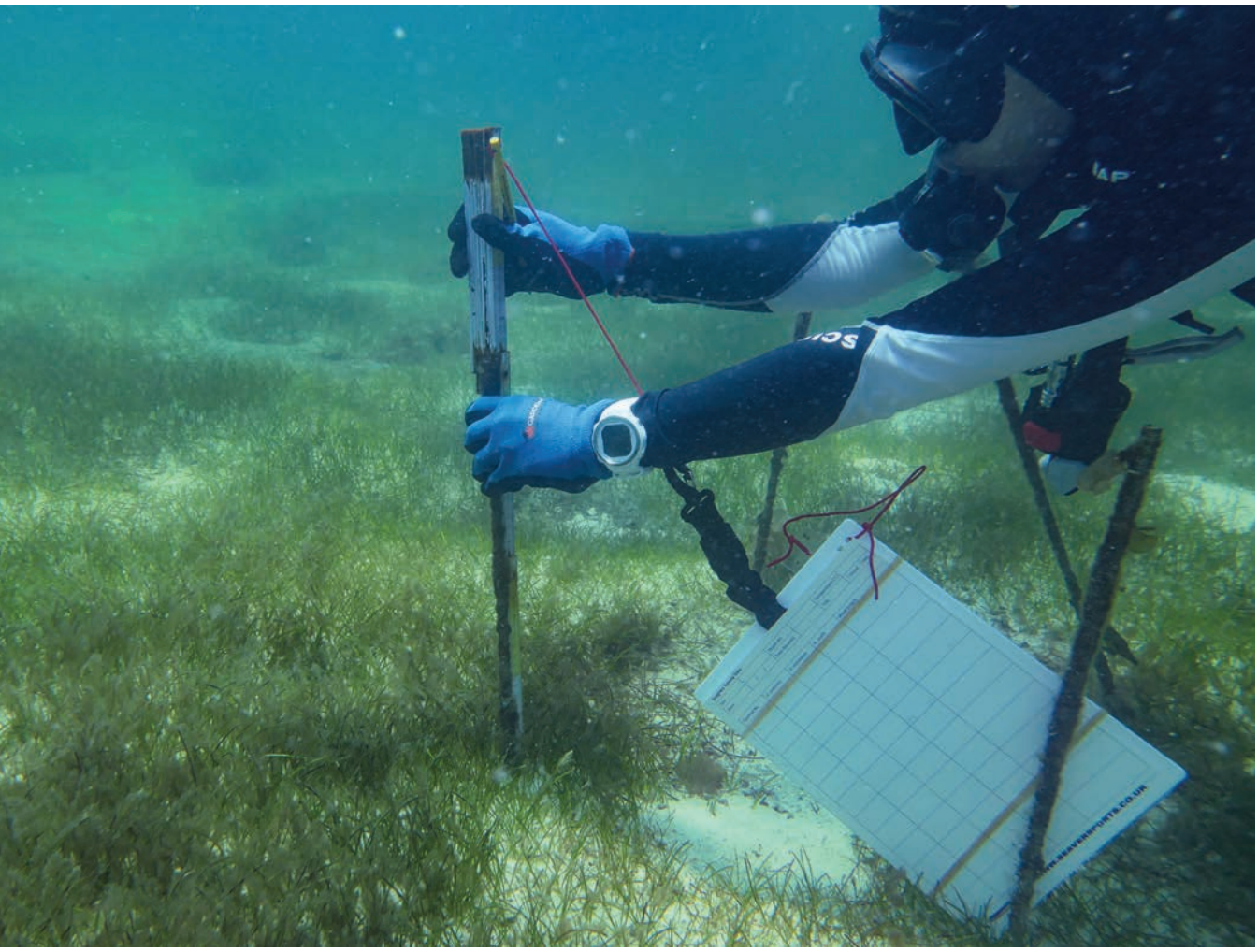
With more than 70 plants in the UAE alone, desalination provides water to millions, albeit at a heavy environmental cost. Along with all the fossil fuels needed to drive the process, the leftover waste – consisting of highly concentrated brine – is discarded into what is already one of the saltiest bodies of water on earth.

The GCC relies almost entirely on desalination for water. That process is ongoing. However, using Celik's method, the amount of magnesium-based cement that could be produced by the waste brine corresponds to approximately 23 percent of the cement production in the UAE and KSA, which are the top two cement producers. In other words, the offset would be 18 percent of the total cement production of GCC countries, which happens to be one of the biggest cement consumers per population in the world.

"Our process to create an alternative cement is just one of many being researched in the industry today, and it is not simply idealistic. With capital investment and large-scale production, the development of these alternative techniques can be cost-competitive and as profitable as conventional cement manufacturing. The reimagining of how we build our cities and our consciousness of industrial waste could make it so that our very structures themselves are joining us in the fight against global warming."

A SEABED OF DISCOVERY

Research on inhabitants of one of the warmest and saltiest bodies of water in the world is producing time-sensitive data on how to conserve fauna and flora under immense stress today.



Illuminated by flashes of electricity from an underwater taser, Noura Al Mansoori is zapping seagrass 10 meters underwater as part of a series of experiments measuring the ecosystem's health and what is becoming an increasingly diminished marine habitat.

It's work that not many scientists are keen on conducting, not because of the aquatic requirements involved in the task itself, but because of the cumbersome growth behavior of seagrass.

Al Mansoori, who is a research assistant in NYU Abu Dhabi's Marine Biology Lab, says patches of seagrass, unlike slow-growing and stationary corals or well-researched mangroves, are constantly moving, making measuring their health and growth a difficult, albeit important, endeavor. As the principal habitat for the endangered dugongs and scores of other species, seagrass, unlike its terrestrial counterpart, is ephemeral and grows so unpredictably that a patch could move several dozen meters over the span of a few months.

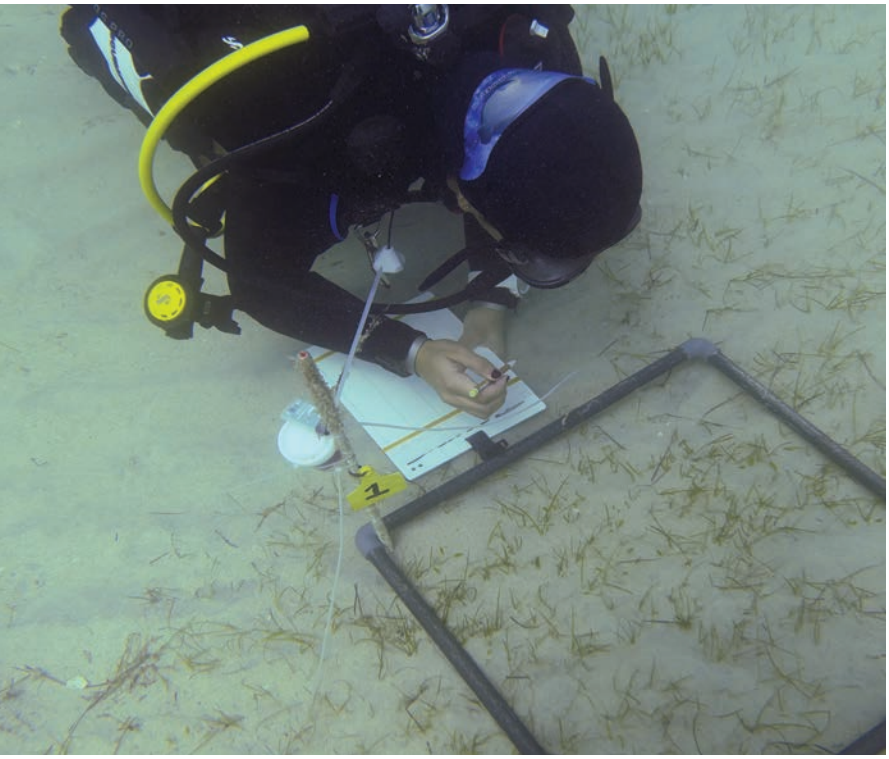
Being inhabitants of one of the warmest and saltiest bodies of water in the world, species endemic and living in the Arabian Gulf demonstrate an amazing resilience to extreme marine conditions. Researching these ecosystems not only produces time-sensitive data on how to conserve fauna and flora under immense stress today, but it also provides a glimpse into what global warming will do to our oceans in the future.

Working with a team of scientists in NYUAD, Al Mansoori is doing

> **“They are essentially underwater plants. They serve as the interface between mangroves and corals, they are also nursery habitats that hold a lot of life that are important to the environment.”**
>
> **Noura Al Mansoori**
> Research Assistant, NYU Abu Dhabi

her PhD on this heavily-under researched subject while also donning her diving gear to conduct field experiments monthly. Her studies will not only lay the groundwork for research on aquatic seagrass, but it will also afford government stakeholders, and environmental groups in the region with information that could prime better policy-making.

In particular, she is hoping to inform dredging decisions by government entities. In her nascent research, Al Mansoori has shown that surveys of potential dredging spots need to be monitored year round. In particular, she has shown that spots without seagrass in a given season could actually be harboring seeds in dormancy under the seabed that could grow in other seasons.



Dredging those areas could disrupt the sensitive habitat and limit seagrass growth.

“They are essentially underwater plants. They serve as the interface between mangroves and corals, they are also nursery habitats that hold a lot of life that are important to the environment. But they are very understudied, yet they are one of the key habitats that the Environment Agency of Abu Dhabi is working on to increase conservation efforts, this is done by establishing Marine Protected Areas where disruptive activities are forbidden, yet places that don’t fall in these MPAs are not protected from activities and may harm seagrasses ” she said.

The third element of Al Mansoori’s research involves seagrass physiology, or understanding the seagrass on a cellular level. This requires she and her colleagues to dive at night with a PAM machine that zaps the grass through fiber optics and measures photosynthetic yield – or how well the plant is performing in terms of their photosynthesis and growth. The reason they go at night is because seagrass, like all plants, have a day and night cycle. During the day, photosynthetic yield, a principal measure of a plant’s health, cannot be measured.

Seagrass is the principal habitat for the endangered dugongs that inspired Al Mansoori's research.

TAKING AN UNDERWATER PULSE

Upon the outset of her academic career, Al Mansoori did not expect that she would be the underwater trailblazer she is quickly becoming. However, a childhood love for the sea, a growing passion in marine life and ecology, and a moment that almost every human proponent of the life aquatic dreams of lead her to know this is her calling.

Notoriously shy, dugongs are known to be one of the most difficult animals to spot in the ocean, let alone swim with. However, a seafarers dream happened for Al Mansoori years ago, on a trip with her family and friends in the Western Region of Abu Dhabi, when they spotted what has historically been noted in journals of famous expeditionaries like Christopher Columbus as the inspiration behind mermaids: a herd of dugongs grazing off the coast.

"We were already in the water, it was 18 degrees, freezing. We saw them from a distance, and we decided to stay quiet. Next thing you know, they are everywhere, maybe a hundred of them feeding, going in and out of the water. Maybe in a way, this inspired my research," she said.

The moment became a calling for Al Mansoori to study the seagrass that is the lifeline for many animals. The research is part of a larger project and one that she along with other members at NYUAD are conducting experiments on.

Al Mansoori's research is serving as a pioneering research blueprint for seagrass in the future. Her work is beginning to prove the importance of the habitat as a nursery for species, a prime food source for endangered animals, a measure of marine health, and a source of carbon sequestering equal to mangroves. Al Mansoori will continue to research the important ecosystem and provide the basis of what could be a growing body of work for the young scientists and many others to come.

THE CATCH-ALL ORGANISM

Could algae help curb carbon emissions and solve food shortages in the future?

Algae, an unsuspecting and relatively simple organism on earth, could be the solution to several global challenges, including helping solve growing food demands, producing fuel to energize worldwide logistics, and even offsetting rising carbon emissions.

The potential for microalgae to be an organism that could lock within its genes the solution to many contemporary issues has been a subject of research for Associate Professor of Biology Kourosh Salehi-Ashtiani for some 14 years.

Early in his tenure at NYU Abu Dhabi, his lab discovered a knowledge gap in algae genome sequencing. Despite it being an integral part of several ecosystems around the world, Salehi-Ashtiani saw a significant lack of data on the biological blueprint of these organisms and decided to dedicate efforts towards remedying that.

"We realized a few years ago that there are thousands of eukaryotic and bacterial species that have their genome sequenced, but at that time, maybe 40 to 60 microalgae genomes were sequenced and publicly available, so we started "Alg-all-code," he said.

His group at NYUAD launched a large algal genome-sequencing project, Alg-all-code, to fill this information gap. Since then, they have sequenced more than 120 microalgae. Approximately 25 of those are local algae that are endemic to the UAE, and approximately another 100 have been sequenced as part of collaborative work between NYUAD and centers around the world.

POTENTIAL UNLOCKED

One of the most promising discoveries in the field has been the findings that some algae emit a gas called dimethyl sulfide (DMS), which could help offset the greenhouse effect of carbon emissions.

"It's very interesting because, unlike CO2, which has a greenhouse effect, DMS, a sulfur-containing gas, has the opposite; it is known as a climate-cooling gas," he said.

The scientists have observed some species of local algae contain many more copies of genes involved in sulfur metabolism compared to other specimens around the world.

This discovery, combined with the relative ease of growth, and low resource demands of microalgae, could be used to create "carbon offset farms," allowing for industrial countries to grow

Kourosh Salehi-Ashtiani

Various species of algae are found on the sabkha surface.

All images are CREDIT TO David R. Nelson, Ph.D.

these microorganisms en masse as a way to reduce their emissions.

The potential for these microorganisms becomes all the more viable when considering algae's resilient nature. Growing them requires very little in the way of resources as they are photosynthetic and have the same demands as plants. Furthermore, algae, especially the varients found here, can even grow by using seawater.

"You can imagine a scenario close to the coast, where you are pumping water from the gulf, which can't be used for other agricultural purposes, here you can make use of it. And that wastewater can be used to offset carbon, while also creating food supplements or food itself," he said.

NOURISHING THE PLANET

When it comes to food algae can be genetically modified to also be a source of calories, food supplements, and even nutraceuticals, or lab-modified forms of algae that contain nutrients to feed a growing population.

Algae can also be harvested and then processed to produce oils ranging from a crude diesel-like fuel, or, with a little refinement, a vegetable oil – albeit at a fraction of the resource demands and financial cost.

However, more discoveries have flowed in since they began the project. The work to sequence regional and global algae has led the team to discover the ubiquitous presence of viral gene elements in algae genomes, showing widespread positive contributions of viruses in shaping algae's evolution, including adaptations to subtropical environments, such as UAE's.

The work paves the way to answer comparative genomics questions, such as genomic differences in saltwater vs. freshwater microalgae. The work his lab is doing can also be mined for ecological insight and applied biotechnology resources.

The new genomic resources generated in this work will enable studies aimed at clarifying other poorly understood mechanisms of algal biology and assist the development of biotechnological applications, especially in non-model species. ■

BRING SPACE HOME

Research from NYU Abu Dhabi is preparing for the next generation of space travelers by making them healthier and more equipped to brave the final frontier.

“The recent wave of private sector space travel companies promises to reduce that cost, but the demand for space on space missions still grossly outweighs supply. So Teo decided to bring space to earth.”

Tucked in the ground floor of the Experimental Research Building, in a device rapidly rotating at thousands of repetitions a minute, instruments measure the conditions astronauts may experience in interplanetary space travel and uncover the strain placed on the human body suspended in zero gravity.

Assistant Professor of Mechanical Engineering and Bioengineering Jeremy Teo is working on modifying an RPM machine that allows him to recreate space micro-gravitational conditions on earth and study what may happen in a miniaturized simulated environment.

In particular, this strand of experimentation looks to address the challenges of the limited and exclusive demands of what the scientific equivalent is of shelf space on space missions. Scientists interested in zero-gravity conditions or space travel are all competing to place their experiments on space-bound vessels that are already efficiently engineered to minimize mass load, considering the tens of thousands of dollars it costs to send anything into space.

The recent wave of private sector space travel companies promises to reduce that cost, but the demand for space on space missions still grossly outweighs supply. So Teo decided to bring space to earth.

Although not an entirely novel idea, Teo was particularly interested in how space travel, with its exposure to radiation and the effect of zero-gravity conditions on cells, would affect humans.

The device they ordered for the lab allowed them to create these space zero(micro)-gravity conditions, by allowing users to fill a flask with cell cultures, spin them to create zero- or low-gravity conditions, then extract the flask to study what happened to cells.

Teo, with his engineering background, was interested in receiving data on the spot. So he began modifying the device to not only allow it to increase the sample size capacity, but also to make it so that data was being received as the experiment was being conducted.

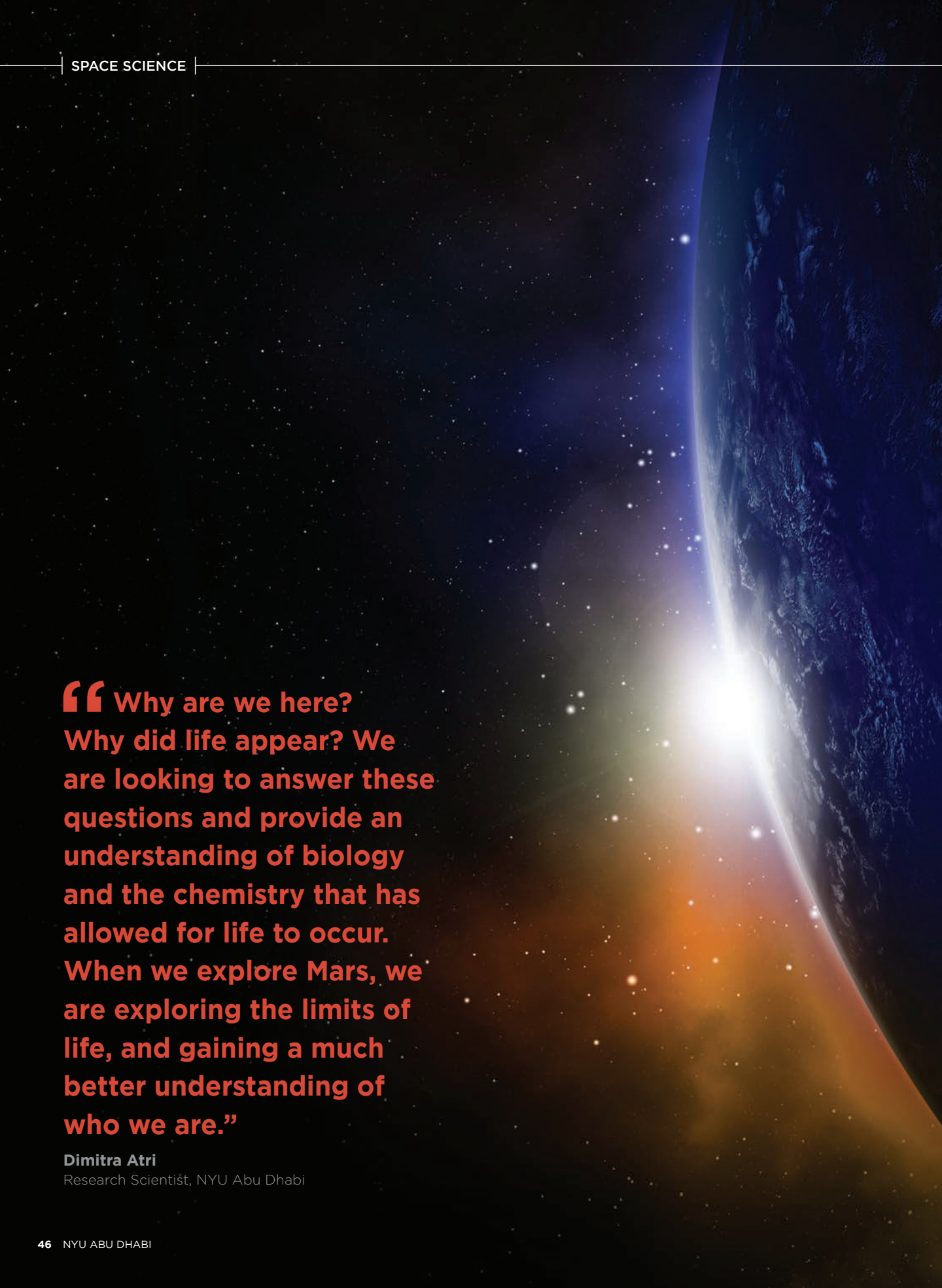
“So essentially we miniaturized the lab and placed it on the device itself so it could record what’s happening in real-time, this is where the innovation lies” he said. “Furthermore, we study the immune cells in biomimetic tissue constructs. We are the first of few groups that do 3D culture in simulated microgravity – better mimicking our tissues.”

The team miniaturized microscopy in the device so that they could capture images of cells undergoing zero- and low-gravity conditions and better study its effect

on the immune cells. On board, the team has built a microscope that is capable of sending those images to the scientists so they could study them while the device, and the microscope itself, is rotating.

Teo and his team are working on automating more processes to overcome the time and energy it takes to boot the machine, slow it down, then extract cells through liquid exchange. By automating the liquid handling process, Teo is able to study those cells over longer periods of time and understand the rate of cell adaptation to differing gravity situations and therefore to see if immunity can be boosted in that way.

The research, which is ongoing, will not only help the growing number of spacenauts that are being popularized through the advent of private sector space travel, but it also provides insight into the ways immunity works on earth.



“Why are we here? Why did life appear? We are looking to answer these questions and provide an understanding of biology and the chemistry that has allowed for life to occur. When we explore Mars, we are exploring the limits of life, and gaining a much better understanding of who we are.”

Dimitra Atri
Research Scientist, NYU Abu Dhabi

BOUND FOR MARS

Across campus, in the Center for Space Science, Dimitra Atri, research scientist at the Center for Space Science, is recreating conditions on what may be a final destination for those that Teo is studying: Mars.

Recreating Martian conditions on earth, Atri leads the Mars Group in the Center. Studying the atmosphere on Mars, and knowing that around 4 billion years ago Mars contained water, Atri is looking to better understand what life on Mars was like.

In particular they are looking at different streams of exploration when it comes to Mars. In collaboration with Professor of Chemistry Panche Naumov, Atri is looking to discover if Mars can support basic biology, or if life can return to the Red Planet.

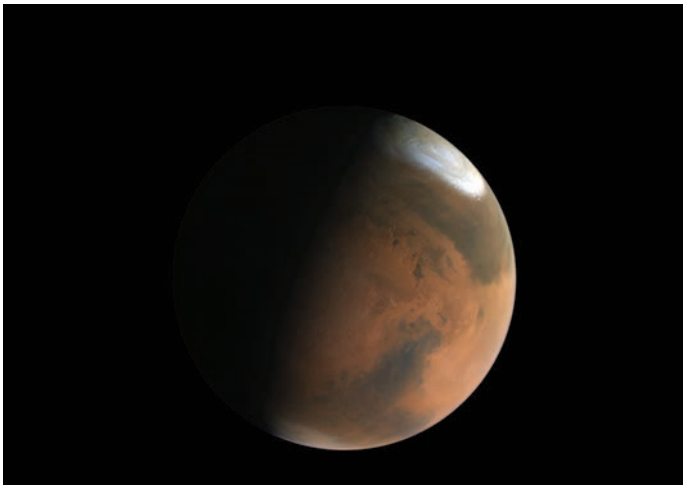


Image of Mars taken by the Emirates Mars Mission "Hope" probe on June 13, 2021.

"Just basic building blocks of life, can life be stable on Mars? For how long can they be stable and what kind of chemistry would occur in those conditions?" he said.

Using data from NASA orbiters, and the Emirates Mars Mission that launched in 2020, the team is also looking at why Mars, a planet once theorized to have life, has now turned into the desert orb it is now. This work could help provide insight into the desertification effect on earth that saw regions, including the Arabian Peninsula, go from being a jungle to the arid environment it is today.

Another stream of discovery in the Center is aiding the decades-old question of how to support long-term space missions to Mars, which the UAE plans on making contact with as part of UAE's Mars 2117 Vision. In particular they are calculating the radiation dose astronauts are exposed to after several years on a space mission to our sibling planet, and attempting to determine what kind of damage would occur, if any, to the organs of those space travelers.

Additionally, they are creating microgravity in the lab, similar to what Teo is doing, by putting microbes in those conditions and seeing how they would respond to that environment.

At the heart of his research however, is a fundamental question that people have been asking since the dawn of existence.

"Why are we here? Why did life appear? We are looking to answer these questions and provide an understanding of biology and the chemistry that has allowed for life to occur. When we explore Mars, we are exploring the limits of life, and gaining a much better understanding of who we are," he said.

By studying space, both researchers are essentially uncovering realities on life at the extremities of existence that is bringing discoveries to how our bodies function on earth. The research will continue as they begin to receive more data and collaborate with local and international space agencies to share their findings.

NYU ABU DHABI ART IN EXPO 2020

After almost two years of many people being unable or unwilling to travel, Expo 2020 has brought together 192 nations from around the world in celebration of culture, history, and commerce. Expo 2020 is also a chance for the UAE to show the world its progress, spirit, and proud traditions. To help deliver that message, three NYU Abu Dhabi faculty have showcased their work in unique ways that are enriching the experience at this global event.

CARLOS GUEDES

For three years, Carlos Guedes, associate professor of music, would take his class to Sir Bani Yas Island to take field recordings of wildlife on the ancient island that is so integral to the UAE's history. The organizers at the UAE Pavilion at Expo 2020 contacted Guedes asking him to use these sounds in the UAE pavilion, and the professor was happy to license and provide the unique soundscape to immerse visitors to the host's pavilion.

In various areas in the pavilion the field recordings are being used to help create atmosphere. In the area called "The Oasis" bird sounds collected on those trips are being used to convey the rich wildlife of the UAE. Whereas sounds of the Oryx and sounds of the sea are being used in the "Pearl Theater" with other audio samples being used in the "Desert of Dreams" section.

Guedes is proud to be a part of the UAE pavilion and happy to see more exposure for the field recordings that were painstakingly collected over years, and with a very specific purpose.

"I want to know how sounds can tell us about environmental change. Sir Bani Yas is an interesting environment acoustically, with 16,000 animals, the sounds are beautiful, it's a pleasing place because you hear all this diversity," he said.

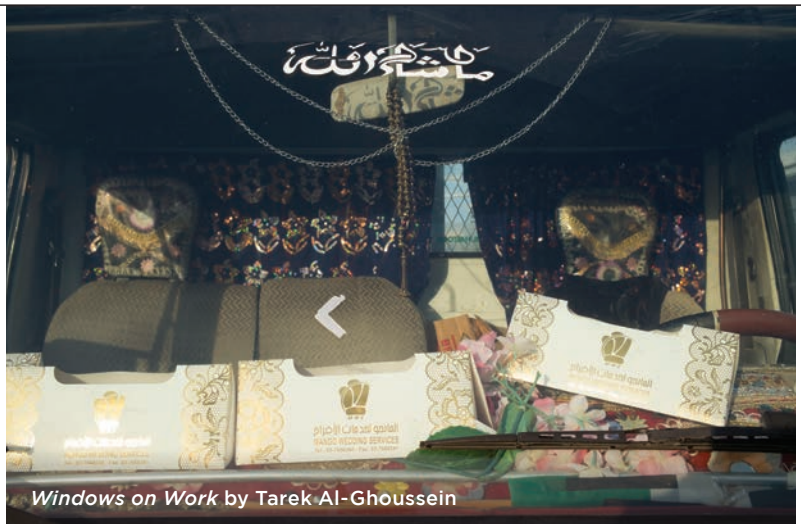
He said that sonically, these sounds have an effect on people that helps transport them into an environment and create a sense of calm and identity that is experienced in the Pavilion.

TAREK AL-GHOUSSEIN

In the UAE Pavilion, Professor Tarek Al-Ghoussein's work Windows on Work showcases some of the unique identities of some of the UAE's unsung heroes.

Using large prints of photographs he took on daily walks, Al-Ghoussein took a series of portraits of the window display on the labor

The UAE Pavilion at Expo 2020 where Carlos Guedes' recordings are being played.



Windows on Work by Tarek Al-Ghoussein

buses that used to be parked outside of Nation Tower.

"I was interested in seeing how each one defines and designs their own space. There were certain things that I saw in almost all the buses, such as a hairbrush or a prayer rug," he said.

But beyond that the spaces were often very personalized, as some created miniaturized garden spaces with artificial grass, fake flowers and plastic trees.

Professor Al-Ghoussein's valuable contributions to NYUAD culminated in establishing the Gulf's first ever MFA program in 2022, shortly before his death later that year. The organizers at Expo 2020 selected Al-Ghoussein's work to be on display permanently in the VIP exhibition for the duration of the event.

SHAIKHA AL MAZROU

Shaikha Al Mazrou, professor of visual art, wanted to create a piece as part of a group exhibition for Expo 2020 curated by Tarek Abo Al Fettouh that would explore the idea of displaying but also comment on a future dialogue with other artists.

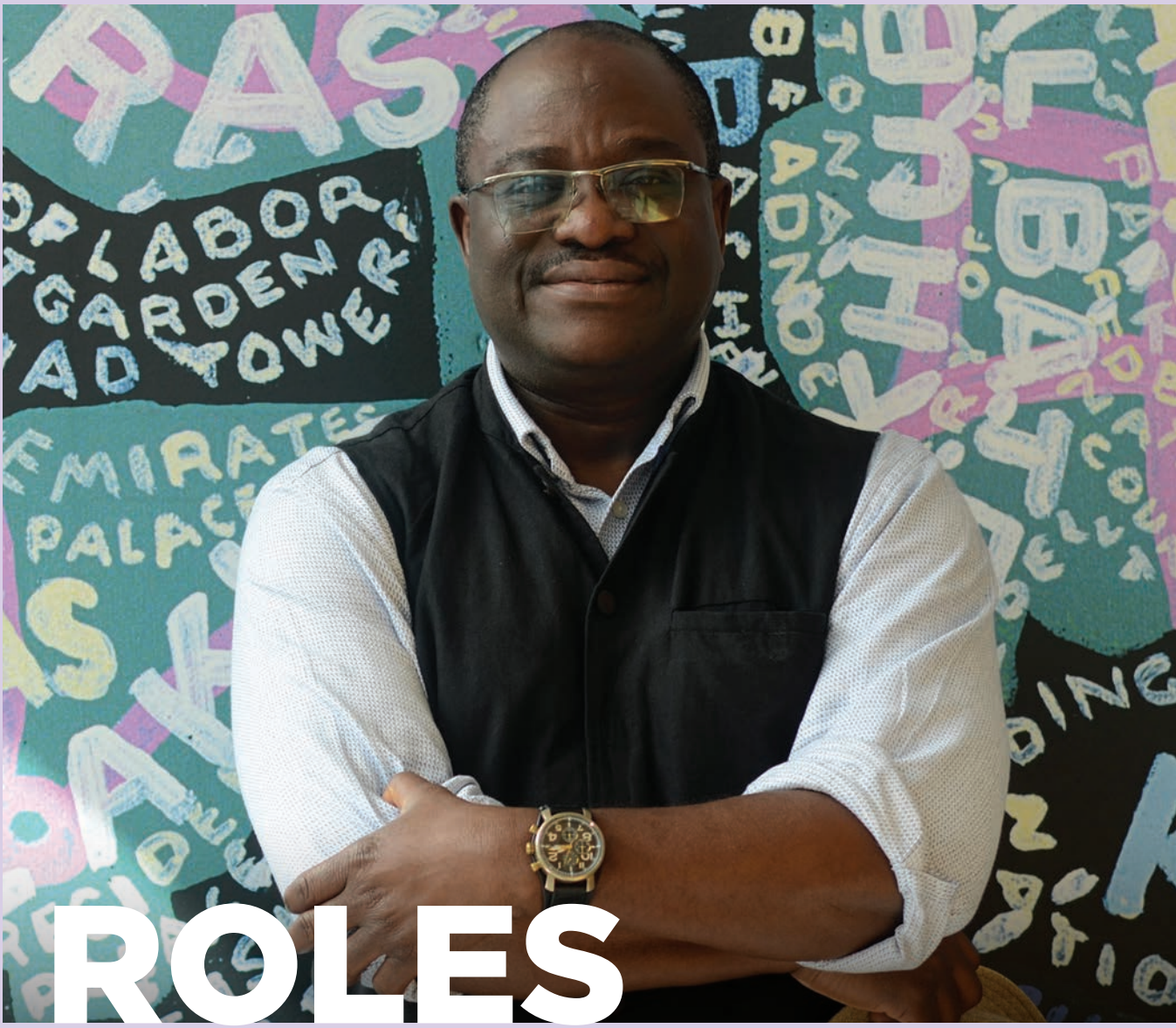
The work, titled *Plinth*, is a striking pedestal located on Expo grounds made out of marble and steel using Al Mazrou's sculptural signature. Al Mazrou proposes a permanent piece that is both a sculpture and an ongoing collaboration executed by the future administration of District 2020. The physical sculpture, conceptually and formally referencing plinths, is activated through commissioning other artists to use it as a platform or a plinth.

"The Expo in and of itself is hosting the world. The aim of this work is to become a living archive and production through this ongoing commissioning of artists and works that become part of the work itself," she said.

Al Mazrou created the sculpture to function as a tool to explore endless possibilities of these future collaborations. As part of the piece, she created a guideline for future artists who would like to display their work on *Plinth*. The indivisible part of the work, the Document (Manifesto), represents the rationale behind the piece and raises many artistic and cultural debates from authorship to temporality to rights of use.

The *Plinth* was on display at the Sustainability Pavilion, at Expo 2020. ■

Plinth by Shaikha Al Mazrou



ROLES REVERSED

As a curator, artist, and planner, Awam Amkpa has organized global events, published research, and promoted educational methods that look to ask academic questions on Global Liberal Arts, the Arts and Humanities around the world.

Awam Amkpa is a performing artist, an academic, and a global mainstay in the art world, but, above all, the new Dean of Arts and Humanities is a stalwart believer in promoting a global humanism as a pillar of education. That world view, which he was first introduced to by his Nobel Prize winning mentor in University many years ago, allowed him to be one of the practical and intellectual pathfinders that contributed to NYU Abu Dhabi becoming the multi-faceted and diverse community it is today. So much so, that it is easy to imagine the professor of drama, social and cultural analysis as a student on this campus had he applied as a high school senior from Nigeria all those years ago.

Amkpa is no stranger to building institutions. Not only has he been an integral component to NYU's Global Network since the start, but he has helped other universities in Europe, Africa, and the US. As the newly appointed dean, his aim is to expand the academic framework of the arts and humanities at NYUAD and instill the ethos of worldliness that he underscores as one of the most important attributes to foster in students.

"The currency of what I do is very active in institutions that are trying to create global nexus for knowledge production, and so for me being at NYUAD, coming from New York frequently, was to participate in the

“As the newly appointed dean, his aim is to expand the academic framework of the arts and humanities at NYUAD and instill the ethos of worldliness that he underscores as one of the most important attributes to foster in students.”

resonances that help build the capacity of our faculty, so that they have this integrated and critically engaging sense of the arts and humanities,” he said.

THE GLOBAL NETWORK

Amkpa subscribes to the notion of Global Humanism, or the concept that the world is further enriched by our diversity and our ability to move and interact through it. In his Deanship, he will continue to build on the idea of this integrated approach to institution building. In doing so, he believes that this will not only train students such that they have a more expansive awareness of themselves as “global citizens who are border crossers” but also continue to provide a unique experience for faculty.

“NYU Abu Dhabi is an opportunity for us as professors to teach differently and to learn differently. It gives us an opportunity to expand our scholarship and it expands our roles as professors in global communication and strategy,” he said.

That globalism is a central force in Amkpa’s philosophy towards education, research, and the general betterment of humanity. It is an idea that he was introduced to and helped to fully realize with his mentor many years ago, Nobel Laureate Wole Soyinka.

EARLY JOURNEY AND MOMENTS WITH A NOBEL PRIZE LAUREATE

Amkpa’s early journey in academia bears another similarity that NYUAD students can relate to. In a way, he was the predecessor to the quintessence of what it means to be an NYUAD student, in that the interdisciplinary nature of his courses allowed him to find his true passion as a student: drama. However, his traditional African parents had sent their son to Europe to study and become a lawyer, and his journey into the arts is a story familiar to many who declare new majors well into their university careers.

During his first year at the University of Ife (now Obafemi Awolowo university) Ile-Ife Nigeria, Amkpa, who was 17 at the time, found himself increasingly frequenting the drama department. His presence was so consistent that the head of the drama department at the time, Soyinka, thought he was a drama student.

Soyinka eventually discovered that Amkpa was not his student. Despite the young Amkpa’s passion for

theater, he was hesitant to confront his parents about changing direction, and the fears of disappointing them in doing so. Having sensed the passion in the young man, Soyinka decided to write Amkpa's parents a letter pleading to them to change their minds and vouching for the student who would fall under his mentorship.

The letter, which Amkpa's parent's framed after Soyinka won the Nobel Prize many years later, became an integral part to his journey in the arts. It's one that many NYUAD students can relate to having been exposed to the myriad of educational opportunities. It's also an idea that Amkpa wants to promote as much as possible, to find students' true calling in life and to increase that exposure to unlock students' passion.

"That letter, that intimate relationship, continues to this day form the foundation for what I do and talk about today. It all came from that primary education, and of course, coming from a continent that is so heavily misunderstood," he said.

DIVERSITY AND DYNAMISM OF AFRICA

Having grown up in Nigeria and moved around the country as a young boy, Amkpa was first exposed to the multiplicity of his country and how misunderstood it is today. His teachings, work, art, and research are commonly quoted and used as a reference of breaking down the misconceptions about Nigeria, and other African countries.

"People essentialize African countries, or they patronize Africa, and they don't see the dynamics, the resilience of the population and their ability to reinvent themselves, and the diversity. I often tell people, travel across Africa, find one person who only speaks one language and I will pay you. It is multicultural by default," he said.

That multiculturalism of his home continent and the ability of the African people to interact and get along also forms a foundational education for him. It also informs his scholarship both in publications and in his artwork.

FULL CIRCLE

Amkpa continues to write about these topics, and makes art – a dichotomy that he says as another reason why he feels at home in the Arts and Humanities division. At the heart of his role as an academic-artist, he will continue to push the idea of global humanism and prove the merits of the outlook as one of the best tools for the future. He is convinced that there is no better place to pursue that educational philosophy than NYUAD.

"As a culture of crossroads, it means people exchange, people produce something unique to themselves, that's what they bring to the table and in exchange, for me, I can't tell you how excited I always am every day to really help build and sustain the infrastructure for the next generation of students," he said.

Just as much as one can imagine Amkpa being a student at NYUAD in a different time, the reverse is also true for students working towards a degree from the Arts and Humanities today from the University. The foundation Amkpa is contributing to today allows for NYUAD graduates following in his footsteps to reach great heights in their respective fields, cultivating a global humanist worldview, and becoming thought makers and leading academics in their fields. ■

Bring to Light

Two award-winning poets highlight research in their creative process and shed light on social issues in a unique way.

Statements such as 'emerging like a demon,' 'disappearing in and out of view,' or 'approaching me like a mindless zombie' were not taken from sixteenth century texts that saw some 50,000 people burned at the stake, but from officers describing Black people today.

In the wave of recent police violence in the US and around the world, Greg Pardlo began studying police depositions justifying the shootings of Black people. In his research, the visiting associate professor of practice in literature and creative writing noticed the language officers used in the documents was almost identical to the hysterical explanations behind medieval witch hunts hundreds of years ago.

In his research, the Pulitzer Prize-winning Pardlo is looking into how the offenders behind these two disparate events – despite hundreds of years of social progress and technological development – seemingly explain their transgressions with similar fervor and rationale.

"What I started doing is writing poems through the lens of the medieval legal language around the prosecution of witches and using that as a kind of juxtaposition to the language of today and the prosecution of Black people," he said.

In his latest work, titled *Spectral Evidence*, Pardlo is writing poems about the ongoing violence and the recent wave of public executions of Black people using the sensibility and language that people in the 15th and 16th century used, with absolute conviction, to demonize and accuse people of witchcraft.

During the inquisition, he studied accounts, such as alleged witches turning into beetles in the middle of the night and attacking people in their sleep, presented as legitimate evidence in court to burn someone at the stake.

"With one eye monitoring current news and another delving 500 years in the past, Pardlo says using poetry backed by research allots him the ability to explore the topic in a unique way."

Using that etymology, his poems take readers through the accounts of modern day shootings and medieval supernatural events in order to justify murder or lynching.

As part of his Cullman Fellowship, Pardlo spent a year working with librarians from the New York Public Library reading texts from the inquisition to better understand this historical event. He would then use that language to help inform the text in his latest manuscript.

"The idea is to highlight the absurdity of it, but also the similarity. The question is where, in the language, where can I find examples where the language of the time reveals something to me that it would not have revealed to them in the moment and can also say something about the legal structures that we are dealing with today," he said.

With one eye monitoring current news and another delving 500 years in the past, Pardlo says using poetry backed by research allots him the ability to explore the topic in a unique way.

NATHALIE HANDAL

French-American writer, educator and scholar Nathalie Handal is born in Haiti to a Palestinian family from Bethlehem. She grew up in Latin America, Europe, New York, and the Middle East, and was educated in the United Kingdom, the United States, and Asia. Handal, visiting associate professor of practice in literature and creative writing, uses poetry and literary research as a means to explore connectivity.

Her research focuses on places and spaces fueled by cross-cultural uniqueness and the creation of art in those confluences. Her seven prize-winning books have demonstrated a clear trajectory in a commitment to transnational awareness, community cultivation, and preservation of culture through innovative poetry projects. With every book, she says, "I'm crafting a republic of many geographies and peoples."

Her critically-acclaimed collection *Poet in Andalucía* recreates Federico García Lorca's *Poet in New York* in reverse. She explored Islamic Spain and *convivencia*, or coexistence. Despite debates surrounding notions of tolerance in Al Andalus during the Middle Ages, Handal points out that we cannot argue against the thriving cultural and artistic output of that period, one these communities created together.

Building on that, she is now working on a collection set in Sicily, which like Al Andalus is a place where racial, ethnic and religious forces converge. She explains, "My project explores how Sicily's power dwells in its capability to portray reality from its social and cultural complexities, and be a space to speak to the world, and conceivably be a mirror."

As part of working on this project, Handal, who speaks six languages, is working on translating several of the Siculo-Arab works into English. She explains, "Translation is a viaduct. A trade route of minds – linking ideas, cultures, worlds, and creating new languages." Translation also enables her to have a deeper, more complex understanding of the poems she is writing.

Additionally, she says that scholars have predominantly separated Sicilian literature according to the language – Greek, Arabic, Latin and Romance dialects – of their literary oeuvres rather than studying them as a constellation, and that her goal is to reunite them in her project.

Although Handal finds it challenging to claim one language or place as her home, she has always been able to return to poetry as an all encompassing space. She says, "When I write a poem, I can be everywhere and with everyone who's part of me." ■

"Translation is a viaduct. A trade route of minds – linking ideas, cultures, worlds, and creating new languages."

Nathalie Handal
Visiting Associate Professor of Practice in Literature and Creative Writing

MAKING THE CASE FOR ARAB ART

Images courtesy of Al Mawrid Arab Centre for the Study of Art, NYUAD

Al Mawrid Arab Center for the Study of Art is developing a new model for research and access, and will help change the very manner in which Arab art is situated in the world of academia and in the public perception.

Al Mawrid Arab Center for the Study of Art is the culmination of a half-century pursuit for art historian Salwa Mikdadi, one that she hopes will provide, encourage, and promote young scholars delving into the understudied field of Arab art.

It began when Mikdadi, the professor of practice of art history, embarked on her academic journey studying Arab art in American universities abroad. At the time, in the early 1970s, Arab art was an under-examined field, and one that Western artists considered "derivative" and not worthy of an academic pursuit.

Early rejections of Arab art and the struggles faced in traacking down important artists fading into obscurity led Mikdadi to dedicate her entire career to change that perception. The result, after 50 years of debunking the deep-set and somewhat condescending perception of Arab art, is found in Al Mawrid. The Center is a first of its kind that looks to not only be a primary resource for scholarly support and academia, but to change the very manner in which Arab art is situated in the world of academia and in the public perception.

"Our strategy is to develop a new historical narrative about this region, from this region," she said. "The fact that this is a center situated in NYUAD, in Abu Dhabi, in this region, is very important. Because generally if an artist wants to study the field, they would be forced to go to sources like the British Library, the France National Library, Library of Congress, and a smattering of material here and there," she said.

"Our strategy is to develop a new historical narrative about this region, from this region."

Salwa Mikdadi
Professor of Practice of Art History


Salwa Mikdadi

“The Arab Art Archive is working now in scanning primary source materials pertaining to modern and contemporary art across the Arab world.”

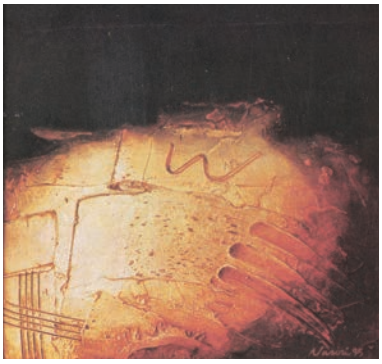
The Center is built on three pillars: research, pedagogy, and assembling a digital archive that would support the study of art in the Arab world – the region’s first academic center for this pursuit.

Haraka: Experimental Lab for Arab Art and Social Thought, which is a project within Al Mawrid and directed by May Al Dabbagh, takes the intellectual life of the region as a starting point for exploring alternative modes of knowledge production about its societies and history. The Center’s lab is an interdisciplinary and dynamic space that bridges the arts and social sciences. It aims to produce knowledge about the region by “theorizing up” from the materials, ideas, and institutions of the region.

The archives, another element of the Center, are central to what Al Mawrid aims to achieve. The team is developing ways to make archival materials digitally available. Democratizing and publicizing important material on Arab art is an essential part to changing the narrative around Arab art, one that Mikdadi says is a struggle for many in the field.

ART HUNTING

Outside the diminished resources she has mentioned, Mikdadi knows all too well the struggle Arab art scholars have in hunting down information about a certain scholarly subject, much of which entails conducting primary research in a region where several countries are rife with turmoil and simply inaccessible.



As a younger scholar, she experienced what it meant to engage in a somewhat-tumultuous treasure hunt for source material – an experience that is now significantly more dangerous considering the regional conflicts.

"I've investigated sources on artists that have passed away for some time now. I've had to go visit their family's descendants, sometimes their great-grandchildren, and they were somewhat not even aware there might be anything at all that the artist has left so they will be rummaging cupboards and saying 'is this what you want?' It takes a great deal of time," she said.

This made it more important to develop the archives in an academic center in the region connected to a strong liberal arts education.

The Arab Art Archive is working now in scanning primary source materials pertaining to modern and contemporary art across the Arab world. The Center also houses Akkasah Photography Archive, which documents different histories and practices of photography in the broader region with a focus on the UAE and the Gulf.

The Center also houses Haraka: Experimental Lab for Arab Art and Social Thought, which is an interdisciplinary and dynamic space that bridges the arts and social sciences. The Lab works with research, archives, pedagogy, and exchange platforms that connects thinkers, artists, and alumni in the region, to produce more nuanced reading of the politics of translation and knowledge production.

The Center is currently in the process of collecting not only important Arab artists' books, and speeches, but also archival ephemera that help illustrate the process behind the artists' work.

As part of this pursuit, the Center also provides educational opportunities for NYUAD students, promoting their learning in the field and providing opportunities to undertake original research on hitherto neglected topics in Arab art.

In one instance, and based on a passing comment her brother made about South Korean companies in Kuwait, Mikdadi urged a South Korean student intern to look into connections between Arab art and their home country while they visited for the summer. The results of the research proved rich and surprising.

These were the kinds of educational experiences that Mikdadi has struggled to facilitate in a permanent manner throughout her journey. However, with the Center now established, the mainstay art historian can rest assured that future Arab art scholars will suffer less in their discovery of the field that has taken Mikdadi from the cupboards of unsuspecting descendants, to her home in the Al Mawrid Arab Center for the Study of Art. ■

HUMANIZING THE FUTURE

What people think of as the future of technology is the work of some faculty on campus at NYUAD today.

Marwa Chafii is a future builder trying to make an increasingly digitized world more human.

Professor of electrical engineering Marwa Chafii works on utilizing the exponential growth of network capabilities that people on-the-go will experience with the introduction of 6G technologies. In particular, she is contributing in engineering ways that would make possible technologies like having an uninterrupted conversation with a hologram of your mother while traveling on a bullet train.

The future Chafii envisions and researches would be welcome respite in a world that has moved many of its functions online. She points at the screen of our Zoom call and says "instead of this, imagine we are sitting next to each other and talking, you in your home, and me in my office."

"I am interested in the human-to-human experience, connecting everything and everyone. 6G will bring up new technologies and applications that will reshape the world," she said.

She sees 6G cutting edge technologies, which in early estimates predict an internet 10 times faster than today for consumers and even 100 times faster for business use cases, will finally unlock the potential of artificial intelligence and its ability to conduct operations through intelligent networking, including sensing. With low latency communications, remotely sensed information will be conveyed to an intelligent fast system, which enables timely reactions and decision making.

Consider the example of Siri, or Google Assistant. Those systems with advanced intelligent sensing would be so smart that one wouldn't even have to ask how many eggs, because it would already know, from observing the context and based on learned experience, that you're baking a lemon meringue and provide you with that information ahead of time.

AI and sensing in the development of 6G still needs time to implement, but it can signify a quantum shift in the way we interact with technology. Both academics and industrial actors believe the anticipated jump to higher

> **"I am interested in the human-to-human experience, connecting everything and everyone. 6G will bring up new technologies and applications that will reshape the world."**
>
> **Marwa Chafii**
> Professor of Electrical Engineering

spectrum internet would open up the potential of many systems that have been introduced today.

A SMOOTH RIDE

This vision extends to life beyond just talking to work colleagues, or loved ones both while stationary and on the move. Chafii works on providing seamless stability in any application that requires very high mobility, whether it's on a high-speed train or in a car.

"Even today, we are losing connection when we have high-mobility communication, so in my work, I design communication signals, or waveform, in a way to be more resilient and more robust," she said.

In particular, the waveform, or the way in which data is transferred through wireless internet, should change depending on the device. Making a more dynamic system, Chafii says, that changes waveform signals according to the requirements of the application and the device needs to be considered in the future.

She is also working on providing more energy-efficient connected devices i.e. Internet of Things (IoT), like wearable devices, that she sees as an integral technology enabled by the future 6G connectivity. The signal emitted by these small and simple devices should be designed to consume less energy allowing 10-15-year battery life.

In these pursuits, Chafii will continue to work with academics and industry leaders to build our future, and possibly an experience that would see these words not read by you, but rather given as a presentation by the future-builder herself. ■